User's Manual

MCC-8004 series

Revision 1.0
(July 2009)

WARNING
Do not attempt to disassemble your MCC-8004 series device. Doing so may void your warranty. There are no serviceable parts inside. Please refer all servicing to qualified personnel.

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TECHNICAL SUPPORT
If you have any questions regarding the information provided in this guide, call our technical support help line at 425-885-3863 or our toll free help line at 1-877-AVI-TECH. You can also email to support@avitechvideo.com

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Warranty

Avitech International Corporation (herein after referred to as "Avitech") warrants to the original purchaser of the products manufactured in its facility (the "Product"), that these products will be free from defects in material and workmanship for a period of one (1) year or twelve (12) months from the date of shipment of the Product to the purchaser.

If the Product proves to be defective during the one (1) year warranty period, the purchaser's exclusive remedy and Avitech's sole obligation under this warranty is expressly limited, at Avitech's sole option, to:
(a) repairing the defective Product without charge for parts and labor; or
(b) providing a replacement in exchange for the defective Product; or
(c) if after a reasonable time is unable to correct the defect or provide a replacement Product in good working order, then the purchaser shall be entitled to recover damages subject to the limitation of liability set forth next.

Limitation of liability: Avitech's liability under this warranty shall not exceed the purchase price paid for the defective product. In no event shall Avitech be liable for any incidental, special, or consequential damages, including without limitation, loss of profits for any breach of this warranty.

If Avitech replaces the defective Product with a replacement Product as provided under the terms of this Warranty, in no event will the term of the warranty on the replacement Product exceed the number of months remaining on the warranty covering the defective Product. Equipment manufactured by other suppliers and supplied by Avitech carries the respective manufacturer's warranty. Avitech assumes no warranty responsibility either expressed or implied for equipment manufactured by others and supplied by Avitech.

This Warranty is in lieu of all other warranties expressed or implied, including without limitation, any implied warranty of merchantability or fitness for a particular purpose, all of which are expressly disclaimed.

This Hardware Warranty shall not apply to any defect, failure, or damage:

- caused by improper use of the Product or inadequate maintenance and care of the Product;
- resulting from attempts by other than Avitech representatives to install, repair, or service the Product;
- caused by installation of the Product in a hostile operating environment or connection of the Product to incompatible equipment; or
- caused by the modification of the Product or integration with other products when the effect of such modification or integration increases the time or difficulties of servicing the Product.

Any Product which fails under conditions other than those specifically covered by the Hardware Warranty, will be repaired at the price of parts and labor in effect at the time of repair. Such repairs are warranted for a period of ninety (90) days from date of reshipment to customer.

Extended Warranty Options

Avitech offers OPTIONAL Extended Warranty plans that provide continuous coverage for the Product after the expiration of the Warranty Period. Contact an Avitech sales representative or details on the options that are available for your Avitech equipment.

Services and Repairs Outside the Warranty Period

Avitech make its best offer to repair products that is outside the warranty period, provided the product has not reached its end of life (EOL). The minimum charge for such repair excluding shipping and handling is $200 (US dollars).

Regulatory Information

NOTE: Marking labels located on the exterior of your device indicate the regulations that your model complies with. Please check the marking labels on your device and refer to the corresponding statements in this chapter. Some notices apply to specific models only.

Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Avitech is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

European Union CE Marking and Compliance Notices

Statements of Compliance

English
This product follows the provisions of the European Directive 1999/5/EC.

Danish
Dette produkt er i overensstemmelse med det europæiske direktiv 1999/5/EC.

Dutch
Dit product is in navolging van de bepalingen van Europees Directief 1999/5/EC.

Finnish
Tämä tuote noudattaa EU-direktiivin 1999/5/EC määräyksiä.

French
Ce produit est conforme aux exigences de la Directive Européenne 1999/5/EC.

German
Dieses Produkt entspricht den Bestimmungen der Europäischen Richtlinie 1999/5/EC.

Greek
Το προϊόν αυτό πληροί τις προβλέψεις της Ευρωπαϊκής Οδηγίας 1999/5/EC.

Icelandic
Þessi vara stenst reglugerð Evrópska Efnahags Bandalagsins númer 1999/5/EC.

Italian
Questo prodotto è conforme alla Direttiva Europea 1999/5/EC.

Norwegian
Dette produktet er i henhold til bestemmelsene i det europeiske direktivet 1999/5/EC.

Portuguese
Este produto cumpre com as normas da Diretiva Européia 1999/5/EC.

Spanish
Este producto cumple con las normas del Directivo Europeo 1999/5/EC.

Swedish
Denna produkt har tillverkats i enlighet med EG-direktiv 1999/5/EC.

Australia and New Zealand C-Tick Marking and Compliance Notice

Statement of Compliance

This product complies with Australia and New Zealand's standards for radio interference.

Preface

Welcome

Congratulations on purchasing this Avitech MCC-8004 series.

The MCC-8004 series Multiviewer is a multi-image video processor designed to accept either four HD / SD-SDI / composite (PAL / NTSC) inputs. Offering output resolutions up to 1920×1200 (50/60 Hz), it also provides labels, borders, alarms, optional audio meters, as well as support for Asian and European character, offering a fully integrated on-screen display (OSD) for visual monitoring.

Allowing you to display up to 120 video inputs on a single monitor (display group), digital and analog video as well as audio signals can be combined in a single display.

The MCC-8004 series offer outstanding scalability and flexibility because individual modules can be combined to create the desired configuration. Modules can be added or removed as the application requires. This flexible architecture eliminates single points of failure that can cripple an entire system. Component failures can be absorbed with simple built-in software-based procedures.

Using the latest DCDi™ technology from Faroudja, DCDI is a video mode algorithm that stands for Directional Correlation De-interlacing. Its function is to help optimize full screen mode regardless of the input format.

Your MCC-8004 series can be used as a standalone unit, or cascaded (daisy-chained) with ACC-8000 or VCC-8000 series modules to provide highly complex monitoring applications (up to 15 modules).

> **NOTE:** No DVI cascade is available for the MCC-8004Q.

About this Manual

This manual contains comprehensive information of your Avitech MCC-8004 series to help you operate the device.

Throughout the manual, the following conventions are used to distinguish elements of text.

> **NOTE:** provides additional hints or information that requires special attention.

> **CAUTION:** identifies important information which, if not followed, may result in loss of data or damage to your device.

Any name of menu, command, icon or button that you can see on the screen is shown in a bold typeset. For example:

On the **Start** menu, select **Settings**.

1 Getting Started

This chapter introduces you to the features and specifications as well as the external components of your Avitech MCC-8004 series. It also guides you through the process of setting up your MCC-8004 series for use.

NOTE:
- MCC stands for Media Control Center.
- Depending on the model you purchased, the cabinet color and the look of the accessories may be different from the ones shown in this manual.

1.1 Package Contents

After unpacking the shipping carton, you should find these standard items:

Avitech MCC-8004 series

Standard Power Cord (US customers only)

DVI Cascading Cable
(optional – when purchasing 2 or more MCC-8004 series)

RS-485 Cascading Cable
(optional – when purchasing two or more MCC-8004)

RJ-50 GPI Terminal Block

Utility Disc (contains software and user's manual)

Set of screws (optional)

Ear (already installed on MCC-8004 upon order for assembly on to rack mount)

1.2 Product Features

- Automatic sensing of HD-SDI / SD-SDI and composite analog input.
- Up to 26 internal configuration presets.
- On-screen display of labels, borders, and video alarms.
- Supports direct TSL Tally / UMD interface.
- Eight GPI for Tally or recall of preset.
- Communication control via RS-232 or IP.
- Compatibility with Galaxy software for configuration, monitor layout, and multiple-system control.
- Avitech ASCII Protocol (AAP) support.
- DCDi™ processing (MCC-8004P, MCC-8004Q, MCC-8004U).
- Fixed quad-split display (MCC-8004Q).
- 32 channels of embedded audio with phase correlation (MCC-8004Q).
- Audio meters for embedded audio with phase, AES (balanced/unbalanced), analog audio – option.

NOTE:
- Embed digital audio streams into high definition digital video signals.
- AES (Audio Engineering Society) – Officially known as AES3, it is a digital audio standard used for carrying digital audio signals between various devices. AES was designed primarily to support PCM (pulse-code-modulated) encoded audio in either DAT (digital audio tape) format at 48 kHz or compact disc format at 44.1 kHz.
- Analog audio is superior to digital audio due to the absence of fundamental error mechanisms which are present in digital audio systems, including aliasing, quantization noise, and supposed limitations in dynamic range.

Specifications

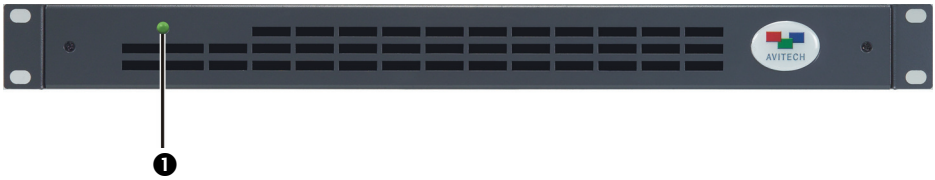
Parts		Specifications
Inputs	Video	Automatic sensing via BNC HD-SDI (1080i/59.94, 1080i/60, 1080i/50, 720p/59.94, 720p/60, 720p/50) SD-SDI (NTSC/525i, PAL/625i, 525p/59.94, 625p/50) Composite analog (NTSC, PAL) Number of inputs: (for MCC-8004a / aL / aA / aAL) four automatic detection composite video (PAL/NTSC) (for MCC-8004d / dL / dE / dEL / dA / dAL / dD / dDL / P / PL / PE / PEL / PA / PAL / PD / PDL) four automatic detection SD-SDI / composite video (PAL/NTSC) (for MCC-8004Q / QL) four automatic detection HD / SD-SDI (for MCC-8004U / UL / UE / UEL / UA / UAL / UD / UDL) four automatic detection HD / SD-SDI / composite video (PAL/NTSC) **NOTE:** Input source for 720p supports 60 Hz only.
	Loop	Available for MCC-8004aL / aAL / dL / dEL / dAL / dDL / PL / PEL / PAL / PDL / QL / UL / UEL / UAL / UDL
Output		Resolution from 800×600 up to 1920×1200 (WUXGA) via DVI-I connector, simultaneous DVI and RGB Number of output: 2
Audio	Analog	Available for MCC-8004aA / aAL / dA / dAL / PA / PAL / UA / UAL
	AES	Available for MCC-8004dD / dDL / PD / PDL / UD / UDL
	Embedded	Available for MCC-8004dE / dEL / dA / dAL / dD / dDL / PE / PEL / PA / PAL / PD / PDL / Q / QL / UE / UEL / UA / UAL / UD / UDL
GPI		8 inputs
Data input / output	Serial port	Number of port: 1 Baud rate: up to 1 Mbaud RS-232 / 422 supporting TSL
	RS-485	Number of ports: 2
DCDi™ processing		Available for MCC-8004P / PL / PE / PEL / PA / PAL / PD / PDL / Q / QL / U / UL / UE / UEL / UA / UAL / UD / UDL
Power supply		Consumption less than 30 watts Input: 100~240 V, 50/60 Hz; Output: 12 V DC (external)
Housing		Metal
Dimension (W×D)		483×254 mm (19×10 inch)
Weight		3.6 kg (8 lbs)
Environment	Temperature	Operating: 0 °C (32 °F) to 40 °C (104 °F) Storage: –10 °C (–4 °F) to 50 °C (122 °F)
	Humidity	0 % to 80 % relative, non-condensing

Parts	Specifications
Safety regulations	FCC / CE / C-Tick, Class A

Operating Features

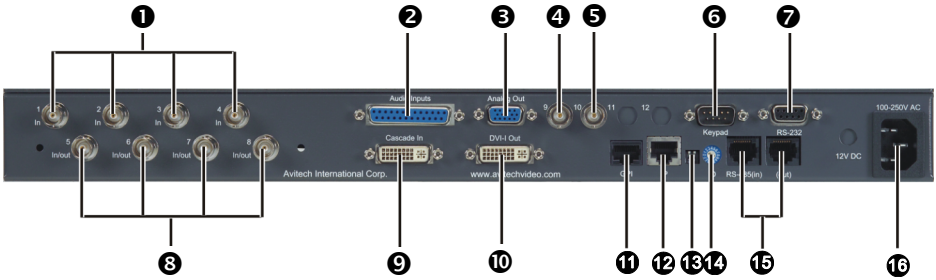
- Standalone operation (single MCC-8004 series) with control via RS-232 cable / IP or;
  multiple operation (up to 15 MCC-8004/ACC-8000/ VCC-8000 via 14 RJ-485 and DVI (except MCC-8004Q) cascade maximum).
- One MCC-8004 series can fit in a single rack unit space for a maximum of four video inputs.
- RJ-50 GPI terminal block adapter is provided for Tally or loading presets.
- Up to 26 presets/configurations can be saved and recalled from the module's Flash EEPROM.
- Compatible with ACC-8000 and VCC-8000 modules.

1.3 Identifying the Front Hardware Component



Ref	Component	Description
1	Power LED	Lights green when the MCC-8004 series is powered on.

1.4 Identifying the Rear Hardware Components



Ref	Label/Component	Description
❶	**In 1 / 2 / 3 / 4**	BNC connectors for HD / SD-SDI / composite video inputs.
❷	**Audio Inputs**	Connector for up to four analog stereo pairs / AES audio inputs.
❸	**Analog Out**	VGA connector for output to monitor display.
❹	**Audio monitoring cascade 9**	BNC connector for audio cascading input.
❺	**Audio monitoring output 10**	BNC connector for analog audio output.
❻	**Keypad**	RS-232 connector for signal from optional TACP (Touch-screen Control Panel) or numerical Simplified Control Panel (SCP) keypad.
❼	**RS-232**	RS-232 connector for signal from PC.
❽	**In/out 5 / 6 / 7 / 8**	BNC connectors for HD / SD-SDI / composite video input loop (passive for analog video, active for digital video).
❾	**Cascade In**	DVI-I connector for multimedia input (cascade from other MCC-8004 / ACC-8000 / VCC-8000 series device).
❿	**DVI-I Out**	DVI-I connector for output to monitor display.
⓫	**GPI**	RJ-50 connector for GP input/output.

Ref	Label/Component	Description
⑫	**IP**	Ethernet connector for using the computer's Galaxy program to perform setup on the MCC-8004 series.
⑬	**Dip switches**	The left dip switch is for updating the firmware while the right dip switch is for returning the MCC-8004 to the factory-default setting.
⑭	**ID**	Rotary dial to assign unique addresses in systems with two or more units.
⑮	**RS-485 (in) (out)**	RS-485 connectors for serial cascading input/output.
⑯	**100-250V AC**	Power jack for connecting the AC power cord.

1.5 Getting Your MCC-8004 Series Ready for Use

Basic Hardware Connections

Perform the following steps to get your MCC-8004 series up and running:

> **NOTE:** The steps outlined next would depend on the type of configuration you wish to set up.

1. Connect up to four BNC cables to the four video **In**put **1** / **2** / **3** / **4** ports for HD / SD-SDI / composite video inputs.
2. Connect the RS-232 cable to the **RS-232** port for signal from PC.
3. Connect the Ethernet cable to the **IP** port for using the computer's Galaxy program to perform setup on the MCC-8004 series.
4. Connect the DVI-I cable to the **DVI-I Out** port for video output to the monitor display.
5. Make sure to assign a unique address to your MCC-8004 series **ID** rotary dial when connecting to systems with two or more units.
6. Connect the RJ-50 cable to the **GPI** port for GP input/output.
7. Connect the AC power cord to the **100-250V AC** power jack.

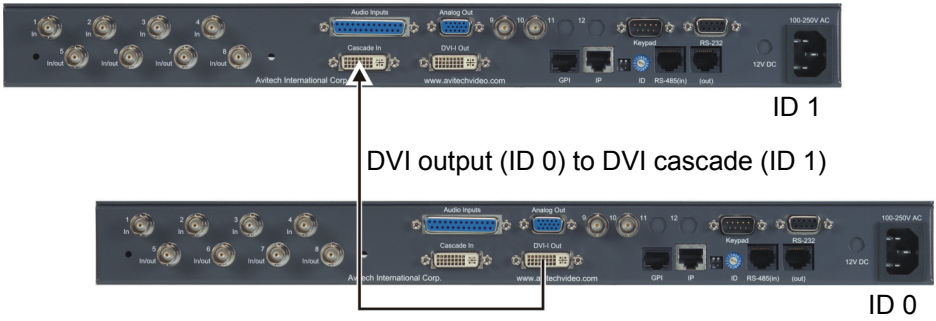
Cascading

To cascade two Avitech MCC-8004 series, perform the following steps:

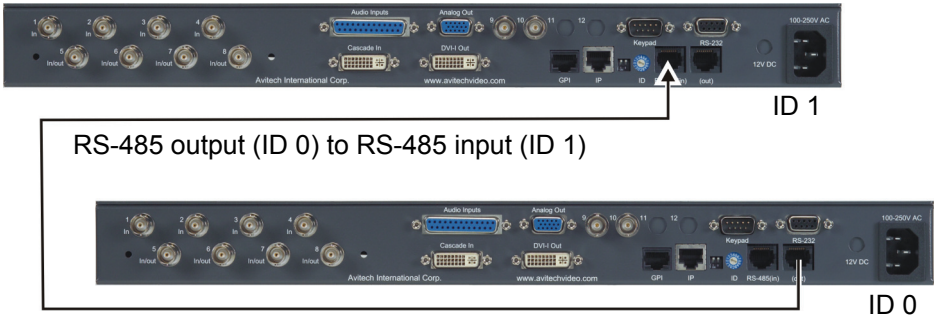
1. Set the Rotary **ID** on the first Avitech MCC-8004 series to **0** and set the Rotary **ID** on the second Avitech MCC-8004 series to **1** (can be other values as long as both are different from each other's setting).

> **IMPORTANT:** When cascading two or more modules (up to 15 maximum), make sure each module gets assigned a unique rotary ID, or it will cause input conflicts.

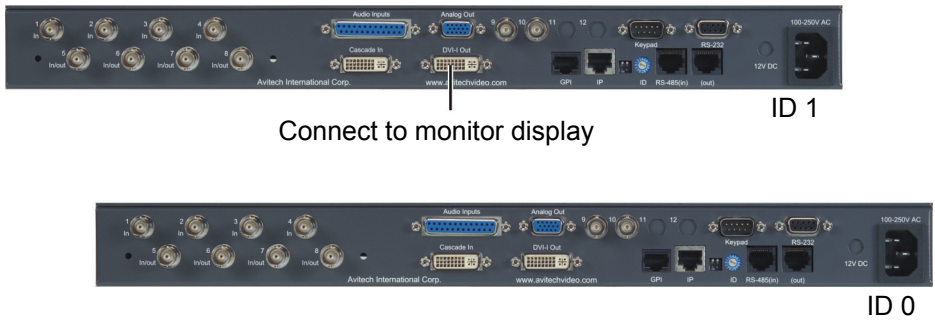
2. Connect one end of DVI cable to the **DVI-I Out** port of MCC-8004 series ID 0 and the other end to the **Cascade In** port of MCC-8004 series ID 1.



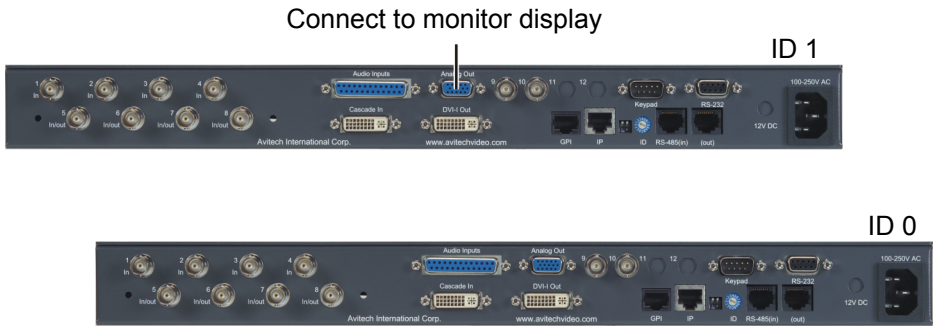
3. Connect one end of the RS-485 cable to the **RS-485 (out)** port of MCC-8004 series ID 0 and the other end to the **RS-485 (in)** port of MCC-8004 series ID1.



4. Connect one end of the DVI cable to the **DVI-I Out** port of MCC-8004 series ID 1 and the other end to the monitor display.



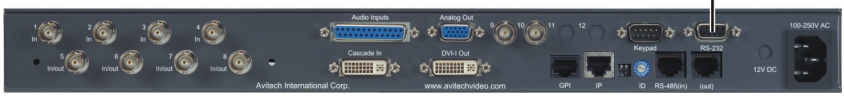
Or for monitor display with VGA input, connect one end of the VGA cable to the **Analog Out** port of MCC-8004 series ID 1 and the other end to the monitor display.



5. Connect one end of the RS-232 cable to the computer's RS-232 port and the other end to the **RS-232** port of MCC-8004 series ID 0.

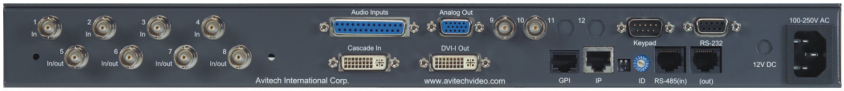
ID 1

Connect to computer



ID 0

6. If the computer application uses multimedia input, connect one end of the DVI cable to the computer's DVI port and the other end to the **Cascade In** port of MCC-8004 series ID 0.



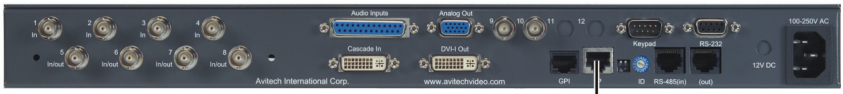
ID 1

Connect to computer

ID 0

7. If you need to use the Galaxy program to perform setup, connect the network cable between the MCC-8004 series ID 0 **IP** port to the computer's RJ-45 port.

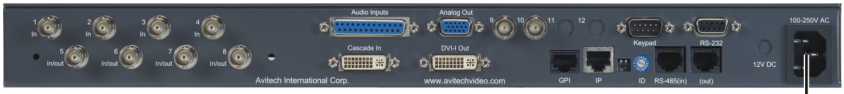
ID 1



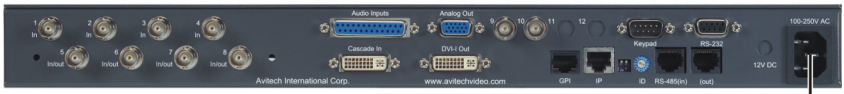
Connect to computer

ID 0

8. Connect the power cables to the two MCC-8004 series and make sure that power is available.



Connect to power



Connect to power

1.6 Using the Galaxy Program

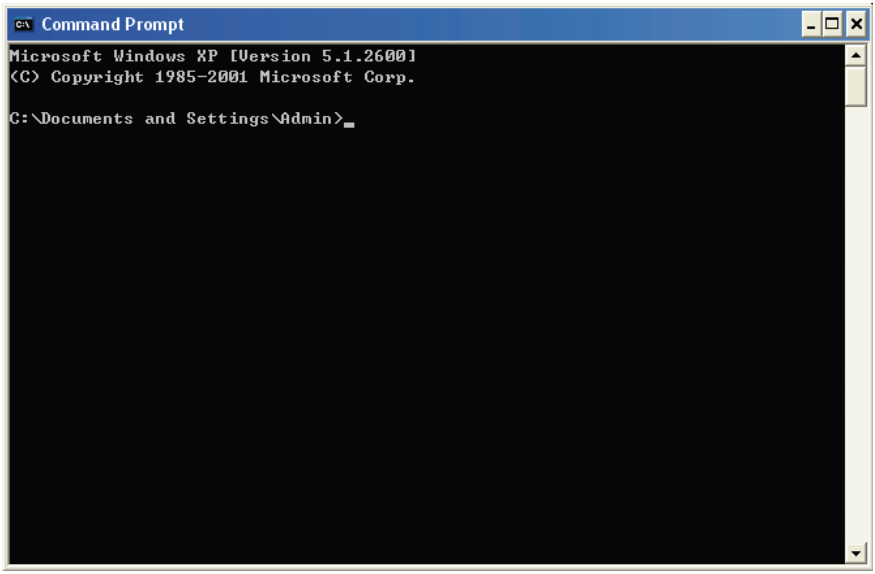
The Galaxy program is designed to be used with Avitech Multiviewer modules. A small yet powerful program, it uses very little system resource and will not take up much hard drive space; best of all, no installation is required. This software can be used on your PC or laptop computer and may even be run through an external portable device but should not be run from a "read-only device" such as an optical disc. This section introduces the Galaxy program for setting up your system.

NOTE: Make sure the MCC-8004 series is powered on and connected properly to your computer (see previous section) before launching the Galaxy program.

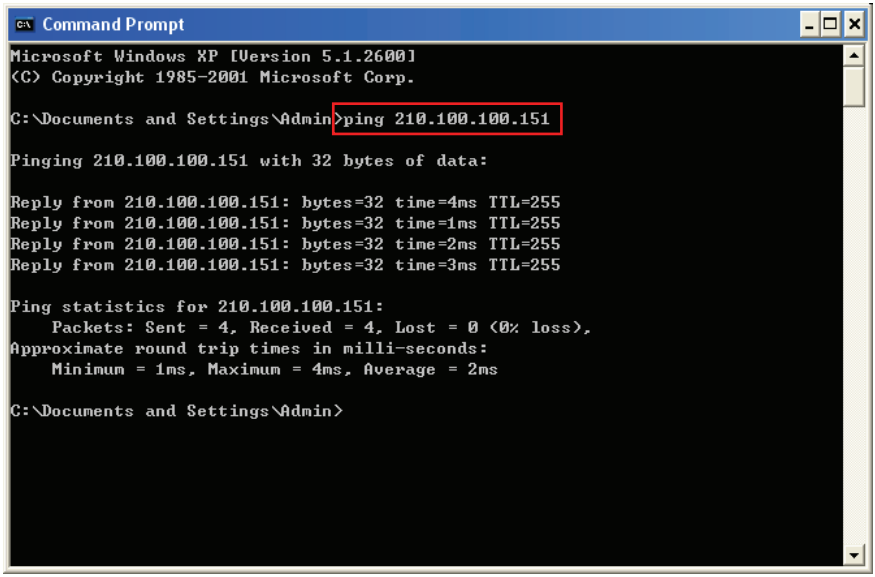
To optimize the usage of your Avitech MCC-8004 series, perform the following steps to configure it using the Galaxy program:

1. If you will use the network cable (IP address) to connect, configure your computer to the following setting: IP address **210.100.100.150** and subnet mask **255.255.255.0**. If you will use the serial cable to connect, configure your computer's COM port to be **1** ~ **10**.

2. If you decide to use the network cable to connect, make sure you can ping the module at **210.100.100.151** (factory default IP address) by clicking on **Start→All Programs→Accessories→Command Prompt**. The following screen appears.

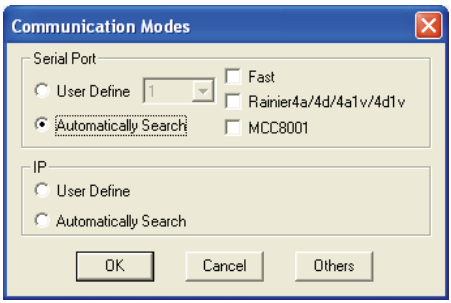


3. Type **`ping 210.100.100.151`** and the following screen appear to signify a successful communication.


Command Prompt
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.
C:\Documents and Settings\Admin>ping 210.100.100.151
Pinging 210.100.100.151 with 32 bytes of data:
Reply from 210.100.100.151: bytes=32 time=4ms TTL=255
Reply from 210.100.100.151: bytes=32 time=1ms TTL=255
Reply from 210.100.100.151: bytes=32 time=2ms TTL=255
Reply from 210.100.100.151: bytes=32 time=3ms TTL=255
Ping statistics for 210.100.100.151:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 1ms, Maximum = 4ms, Average = 2ms
C:\Documents and Settings\Admin>

4. Type **`exit`** to exit the **Command Prompt** screen.

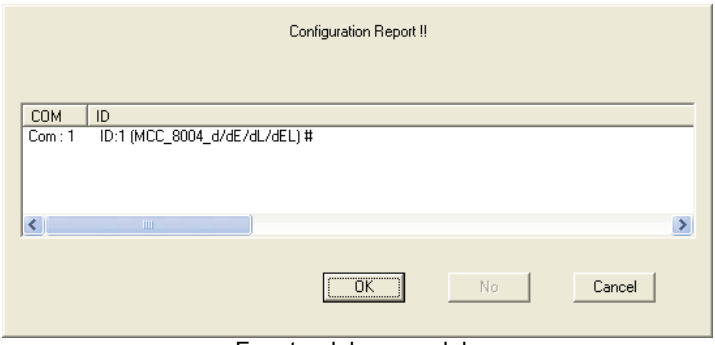
5. Run the Galaxy program by double-clicking the **`Galaxy-V311.exe`** file. When the following screen appears, under **Serial Port** select **Automatically Search**.



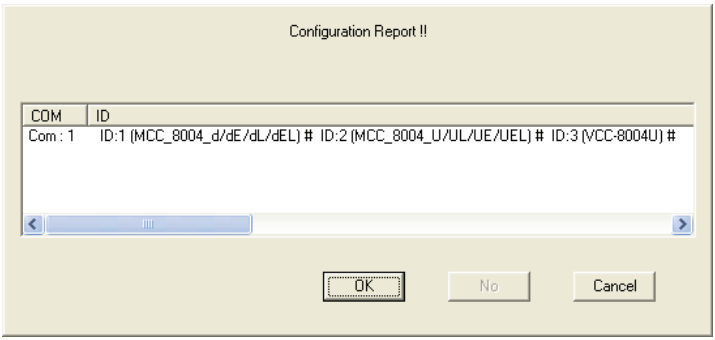
6. Click **OK** and your computer would start to search for your MCC-8004 series.

NOTE:
- If you have two or more modules cascaded, they should also be detected.
- Make sure that the slave module's baud rate and resolution is the same as the master module's.

7. Upon finding your device, the following screen appears to confirm connection to your MCC-8004 series.



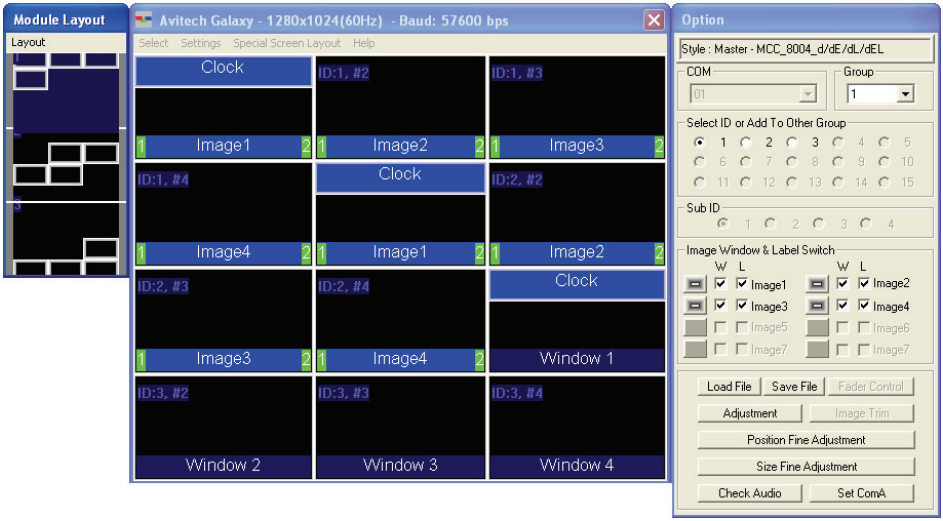
For standalone module



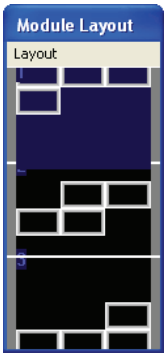
For cascaded modules

NOTE: Make sure the cascaded modules have different rotary ID settings (e.g., **1** – **2** – **3**) on their rear panels.

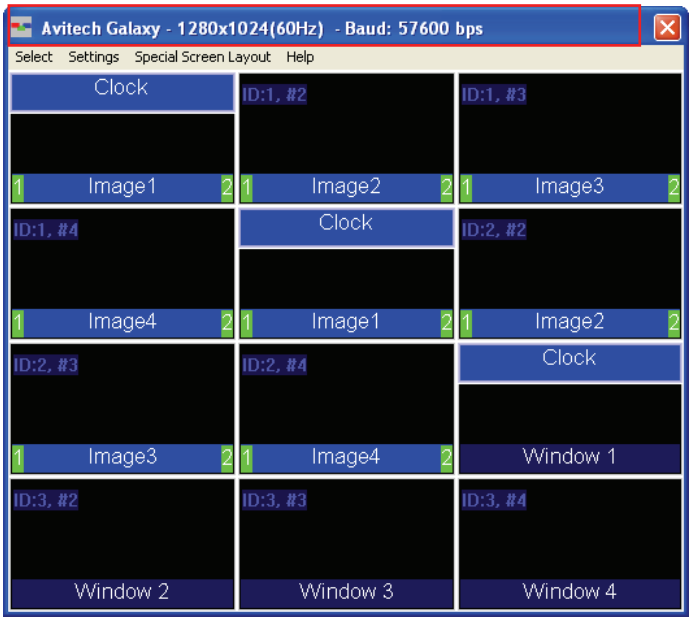
8. Click **OK** and the following screens appear: **Module Layout** window, **Galaxy** control window, and **Option** window.



- **Module Layout** window contains the bird's eye view of the module layout belonging to each ID in the system. In this example, the top window displays the layout belonging to ID:1 on the Galaxy control window, the middle window displays the layout belonging to ID:2, while the bottom window displays the layout belonging to ID:3.



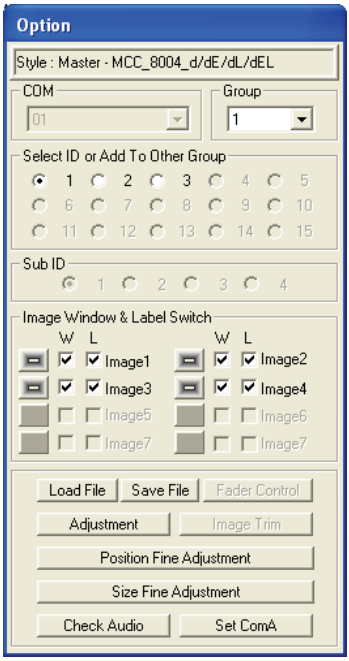
- **Galaxy** control window is for creating and configuring the layout.



On the blue information bar portion can be found the following items:

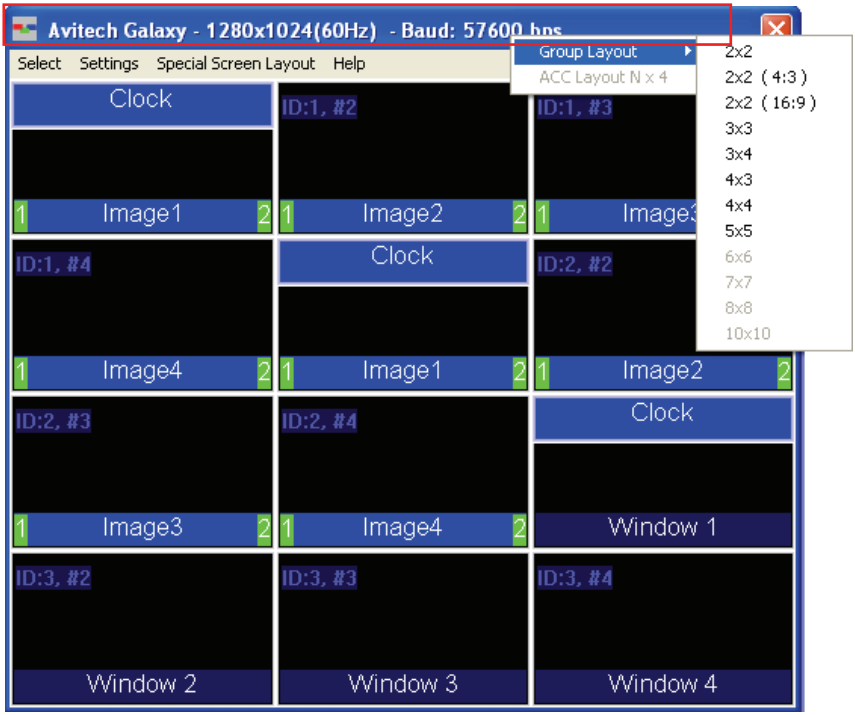
- *Logo icon* **Avitech Galaxy**: proprietary logo and the name of the software.
- **1280×1024 (60Hz)**: shows the current output resolution and frequency.
- **Baud: 57600 bps**: shows the current COM port baud rate.

- **Option** window is for group and window/label setup, save/load file, adjust image, monitor audio, and COM port setting. (Refer to a later section for details.)



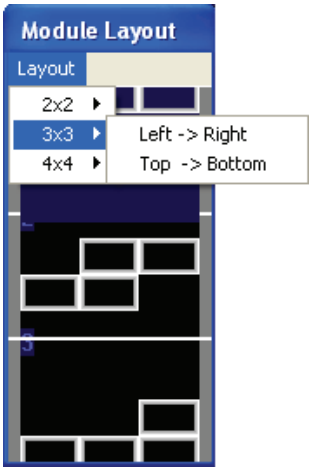
9. Right-click the mouse on the blue information bar to access the **Group Layout** menu. Select from **2**×**2** up to **10**×**10** as possible grid positions on the monitor display.

> **NOTE:** The layout size available for your particular model will depend on the monitor display's resolution as well as the smallest window size limitation (MCC-8004 series smallest window size is 144×128 pixel).



Module Layout Window

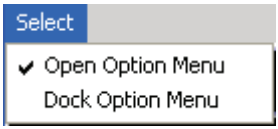
Layout Menu



Select from **2**×**2** up to **10**×**10** (left to right or top to bottom) as possible grid positions on the **Module Layout** window.

Galaxy Control Window

Select Menu



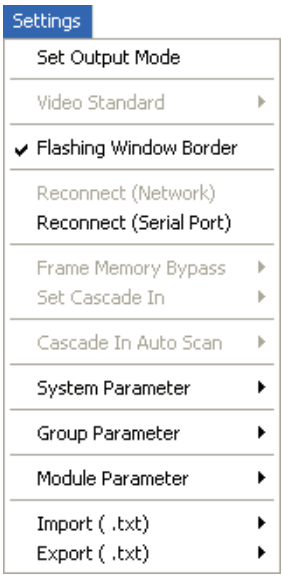
Open Option Menu

Toggles the **Option** window display on (with checkmark) / off.

Dock Option Menu

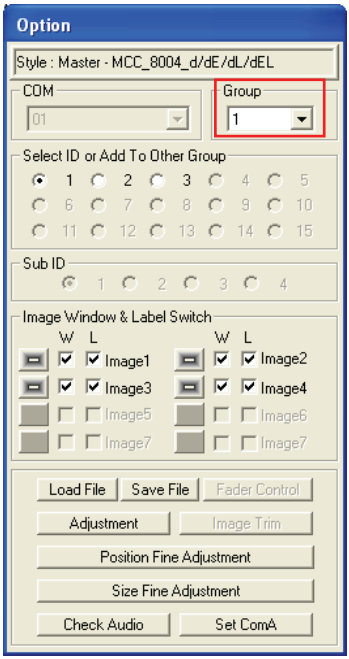
Returns the **Option** window display to its default position on the right side of the Galaxy control window. This option is not available (grayed out) if the previous item **Open Option Menu** is disabled.

Settings Menu

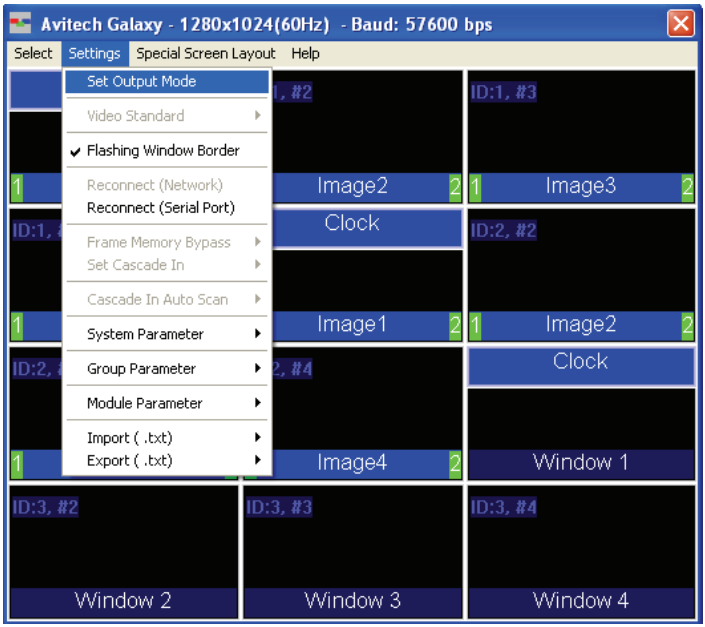


Set Output Mode

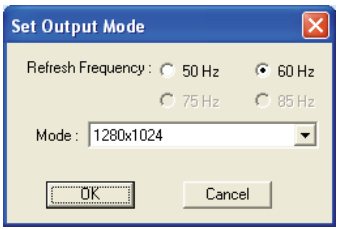
Changing the output resolution affects all the modules in the selected group. If you have more than one group, make sure you select the correct **Group** on the drop-down menu. The MCC-8004 series default output resolution is 1024×768 / 60 Hz.



1. Click **Settings**, and then click **Set Output Mode**.

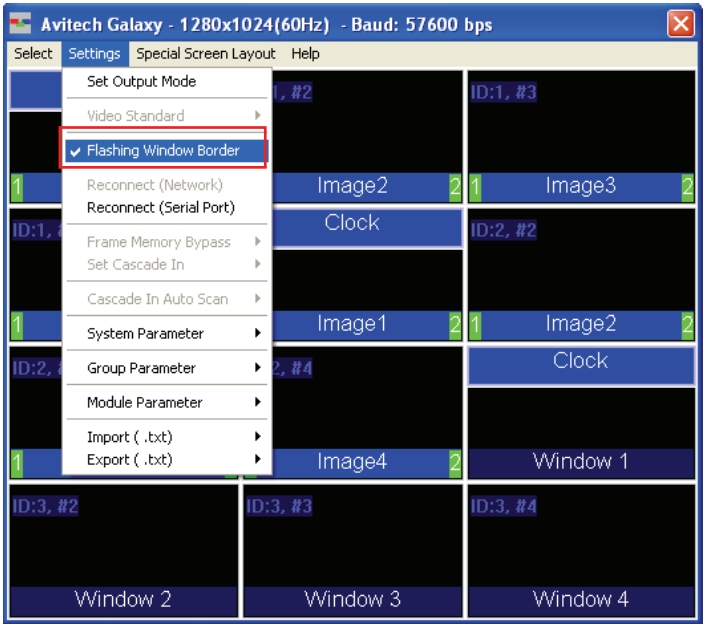


2. When the following screen appears, set the output resolution to match the monitor display's. Select the **Refresh Frequency**, select the **Mode** from the drop-down menu, and then click **OK**. You will notice that the selected resolution is displayed on the top bar of your Galaxy program.



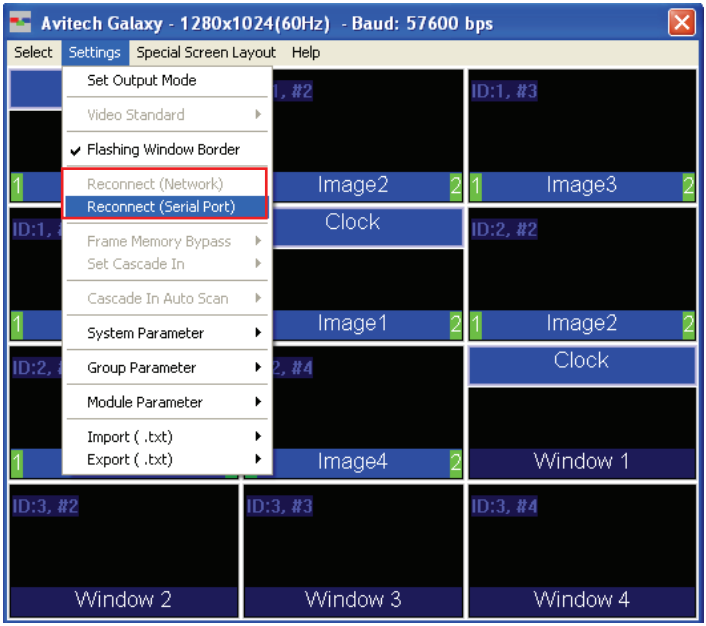
Flashing Window Border

When the **Flashing Window Border** option is enabled (with checkmark), the border of the window where the mouse cursor just resided will blink twice to notify you of its location.



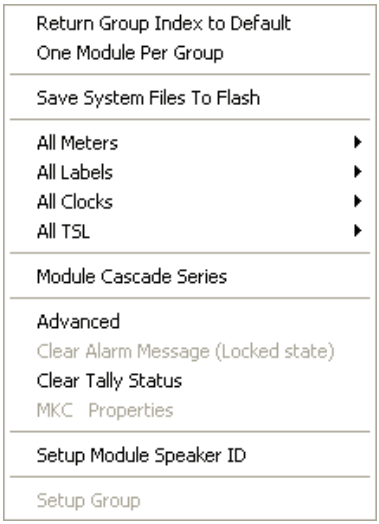
Reconnect (Network) / (Serial Port)

When you have unplugged the IP cable and re-connected it, click **Reconnect (Network)** to continue the configuration process. Or, when using the serial cable, click **Reconnect (Serial Port)** instead.



System Parameter

The following setup affects all the modules of all the groups. Upon clicking **System Parameter**, the menu appears as shown next:

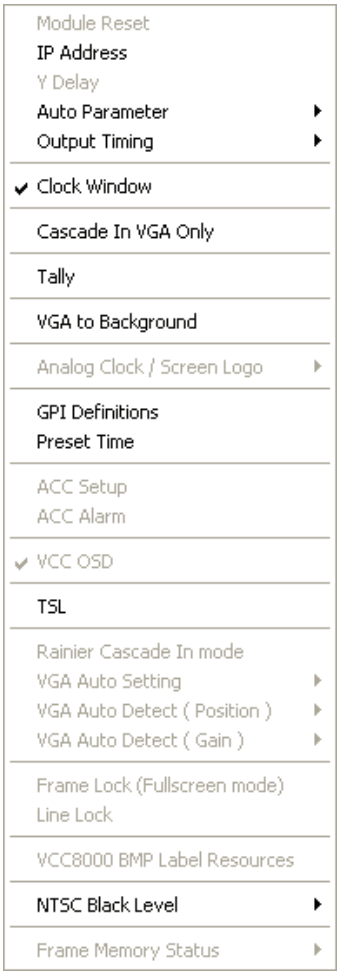


Group Parameter

The following setup affects all the modules in the selected group only. Upon clicking **Group Parameter**, the menu appears as shown next:

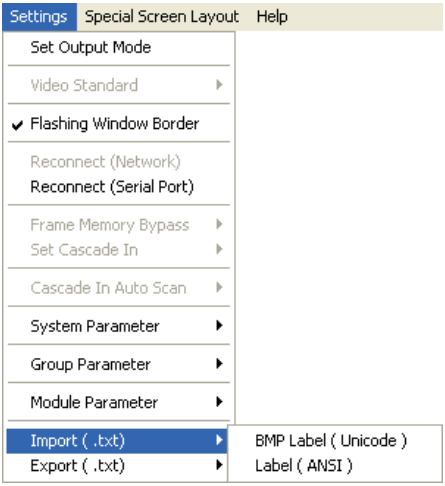
Module Parameter

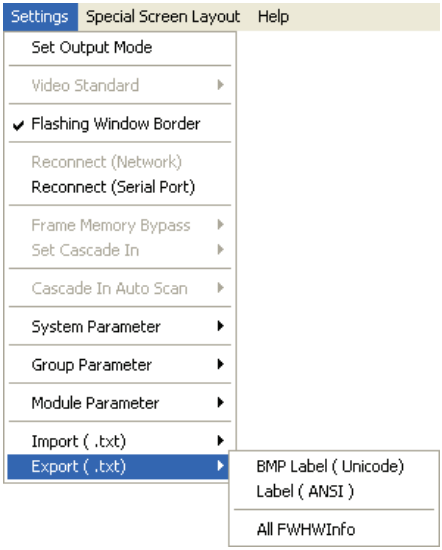
The following setup affects the selected module only. Upon clicking **Module Parameter**, the menu appears as shown next:



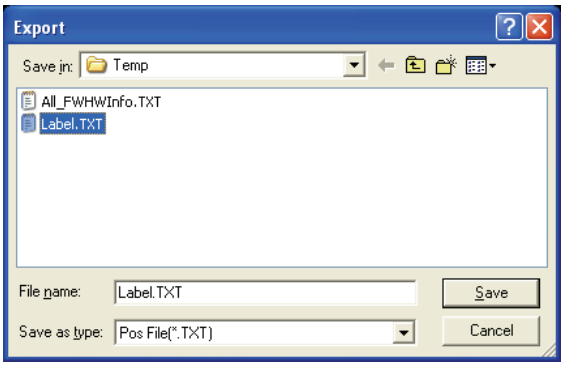
Importing / Exporting Label

Allows you to import label from / export label to Microsoft® Excel or Notepad to be edited externally.

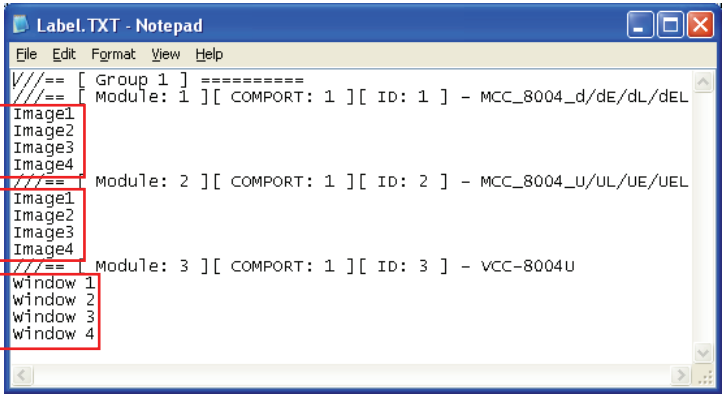




The convenient way is to export the file (label) as a **BMP Label (Unicode)** or **Label (ANSI)** `txt` file by assigning a filename when the next screen appears.



By using Microsoft® Notepad, edit the text in the file starting with **Group 1** and **Module 1**. When you are done editing the label (highlighted in red next) save the **txt** file and import it. The on screen labels will then be updated.

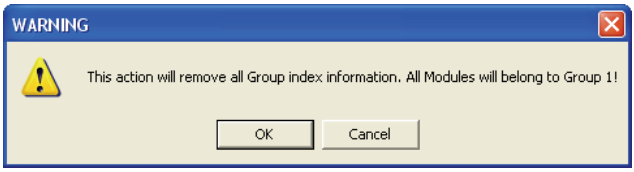


System Parameter

The following are the items appearing on **System Parameter**.

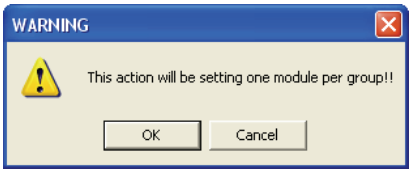
Return Group Index to Default

Allows you to return all groups to their default setting as well as combine all modules into one group. Click **OK** when the next screen appears to complete the configuration change.

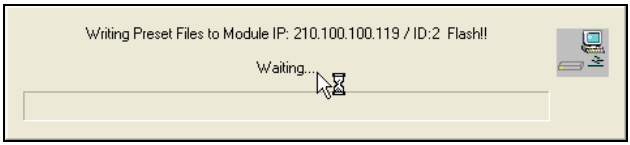


One Module Per Group

By default, the Galaxy program will combine all available modules into one large group. To quickly divide modules into different groups, each module can be treated as a group. For example if cascading four modules then it will be divided into four groups. When the next screen appears, click **OK** to finalize the changes.



The configuration progress will be shown on screen.

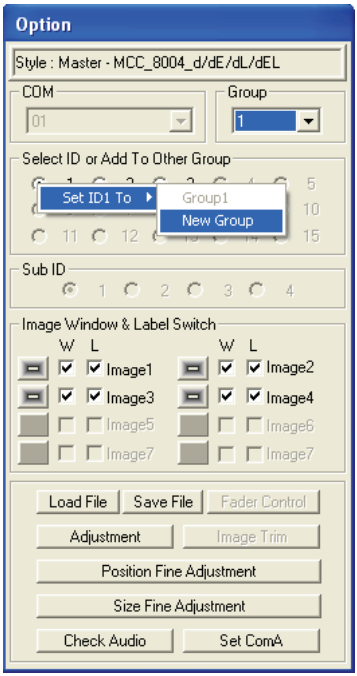


NOTE:

- The group's sequence would be set according to the Rotary ID number in an ascending order.
- When in full screen mode, the window layout prior to full screen mode would automatically be restored before grouping.
- After grouping, the module's preset file will be cleared. The MCC-8004 series' **`system.agi`** (new configuration file), **`module.sys`**, and **`software.ini`** files will be updated.

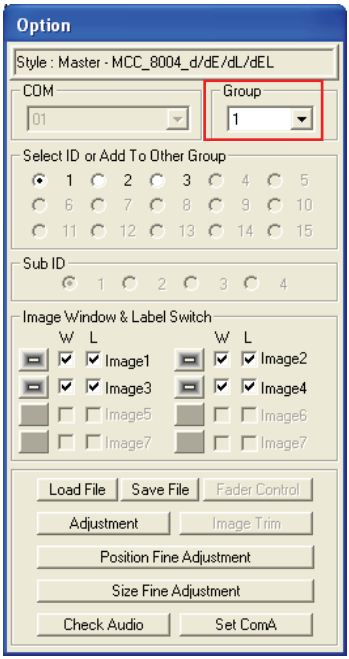
Or, another method for creating new groups is:

1. Right-click the mouse on the module you wish to add to the new group. Then click **Set ID# To → New Group**.



2. Repeat for all additional modules (you can either add additional modules to the new group or create additional groups).

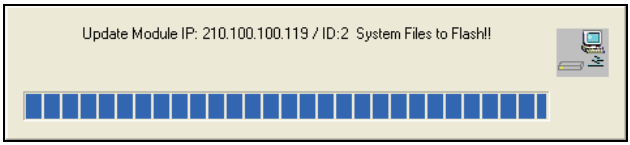
3. To switch between the different groups, use the **Group** drop-down menu.



4. Exit the Galaxy program and select **Yes** when prompted to save to flash memory.

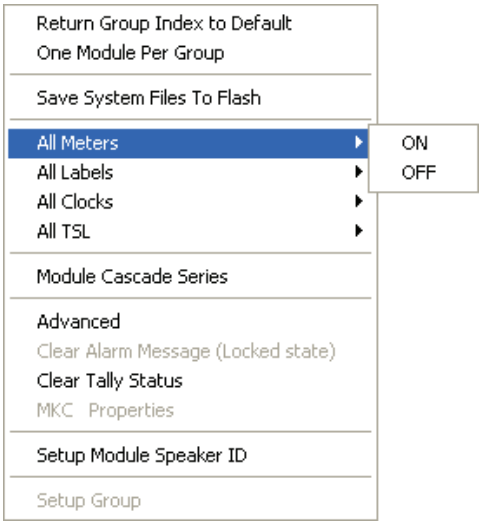
Save System Files to Flash

Allows you to save all configuration settings to flash memory. If the system configuration has been changed, save the changes first before continuing the other configuration settings. The progress of saving to flash memory will be displayed.



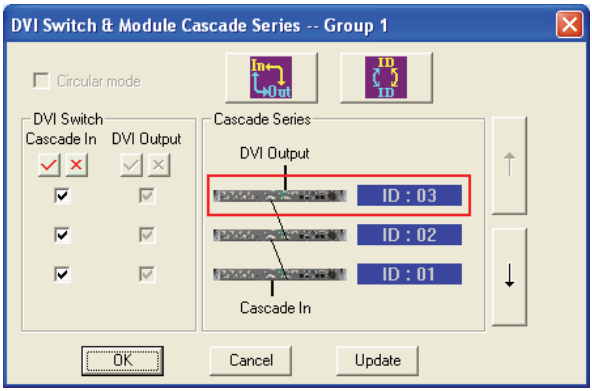
Turning On/Off All Meters/Labels/Clocks/TSL

To turn on/off all meters / labels / clocks / TSL for all the modules regardless of the group it belongs to, click **ON**/**OFF**.



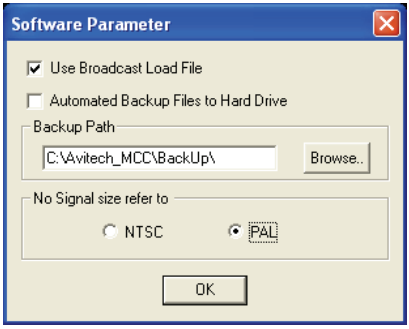
Module Cascade Series

Use the **DVI Switch** function to enable or disable **Cascade In** for each ID number. Use the **Cascade Series** function to change the ID number designation only; this will not affect the actual physical connection of the MCC-8004 series.



Advanced

Upon clicking **Advanced** the following screen appears:



- **Use Broadcast Load File**
  For loading preset / switching resolution / group reset. When this option is enabled (with checkmark), the Galaxy program will broadcast the command to every module, allowing for simultaneous execution of the command.

NOTE: This feature should always be enabled.

- **Automated Backup Files to Hard Drive**
  By default, the Galaxy program will save all backup files to the **`C:\Avitech_VCC\BackUp\`** folder. You may change this by clicking **Browse** to select a different location to save the backup information.

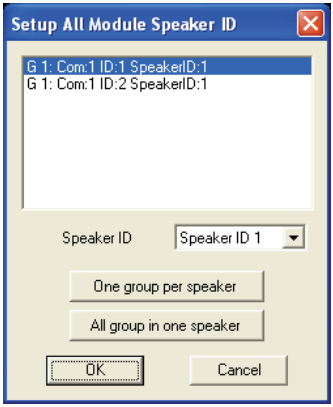
- **No Signal size refer to**
  When the window is unable to detect a signal, this will serve as the basis for the Galaxy program to adjust the window size. **NTSC**: maximum window size is 816×465. **PAL**: maximum window size is 816×560.

Clear Tally Status

When running Tally via RS-232, use this function in the Galaxy program to close it. If not, then use the ASCII Z command to close Tally via RS-232.

Setup Module Speaker ID

Upon clicking **Setup Module Speaker ID** the following screen appears:



Use this function to set up the speaker to monitor the audio source by assigning the **Speaker ID** number (**1** to **60**) for each module ID. Click to assign **One group per speaker** or to assign **All group in one speaker**. Then click **OK** to exit.

Group Parameter

The following are the items appearing on **Group Parameter**.

Group Reset

Allows you to refresh all modules belonging to the same group.

Meter

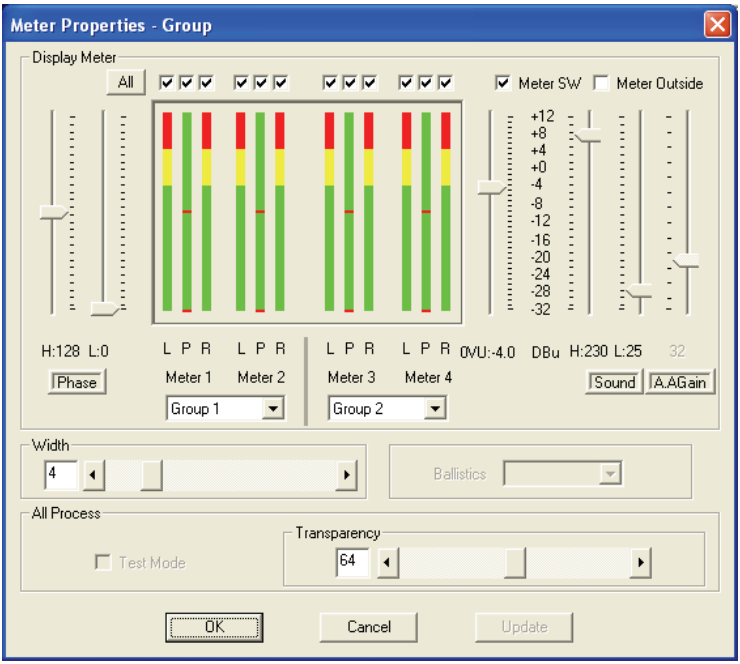
There are two hierarchies for setting the **Meter** properties. One can affect the entire group, while the other affects a single window.

For an Entire Group

To change the audio meter properties for an entire group, perform the following steps:

> **NOTE:** Make sure to turn on all audio meters (see previous section) before setting the audio meter properties.

1. Upon clicking **Meter** the following screen appears:



The MCC-8004 series is capable of displaying embedded audio as VU (volume unit) meters inside the video window. Embedded audio is divided up into four groups with a master and secondary channel for each group, allowing you to display the left and right VU meter of either the master or secondary channel on the left and right side of the window just as the menu depicts.

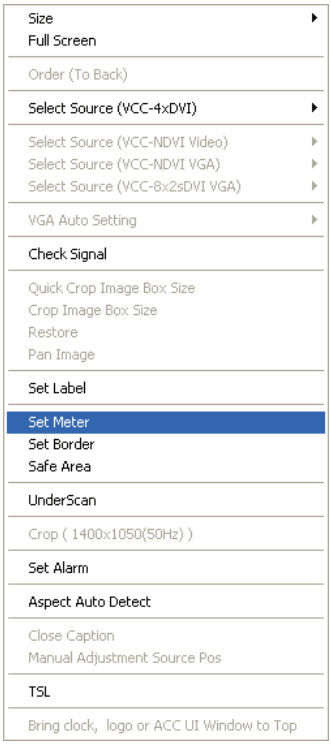
2. To change the group, select it from the **Group** (**1** ~ **4**) drop-down menu.

NOTE: When there is no audio detected, you will NOT see any VU meters.

3. Use the sliders to adjust the **Phase** (**H** / **L** sliders), **VU** (one slider), **Sound** (**H** / **L** sliders), **A. A Gain** (one slider).

For an Individual Window

To change the audio meter properties for a single window, use the mouse to right-click on a window, and then click **Set Meter**.



Label

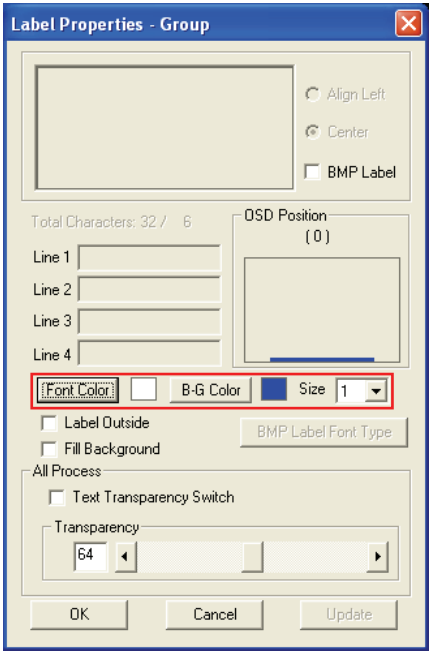
There are two hierarchies for setting the **Label** properties. One can affect the entire group, while the other affects a single window.

For an Entire Group

To set the label properties, perform the following steps:

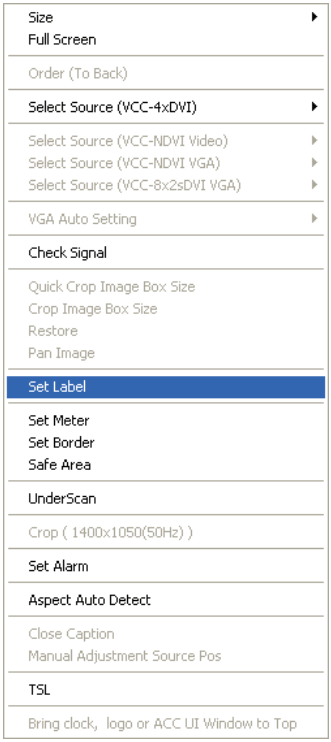
> **NOTE:** Make sure to turn on all labels (see previous section) before setting the label properties.

Allows you to adjust the **Font Color**, **B-G** (background) **Color**, and font **Size** for all labels in the group.

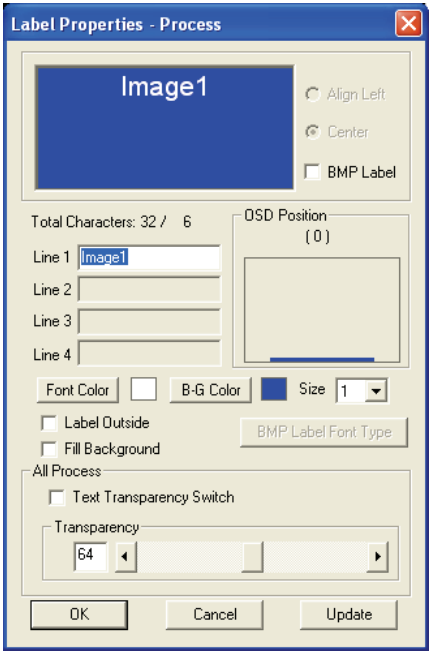


For an Individual Window

1. Right-click the mouse on a window and select **Label** to enter the text.



2. Keep in mind that each window supports one line of text up to 32 characters.



- **OSD Position**: allows you to change the vertical position of the label by clicking above or below the blue line (default is **0**).
- **Label Outside**: allows you to place the label outside the window.
- **Fill Background**: allows the label background to fill the entire width of the window.
- **Text Transparency Switch**: allows you to set the transparency level of the entire label including the background.

- **BMP Label**: allows you to activate the universal fonts for labels by performing the following steps –
  1. Click to enable the **BMP Label** checkbox (with checkmark).
  2. Click the **BMP Label Font Type** button.
  3. When the Font window appears, set the **Font**, **Font style**, and **Size**. Then click **OK**.
  4. On the **Line 1** window enter a label in the desired language by first selecting the language on the Windows taskbar.

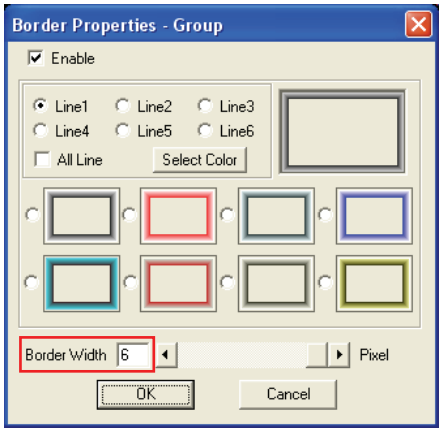
  5. Repeat the above steps for all the other windows.

Setting Border Properties

Borders are turned on by default, to turn off the border perform the following steps:

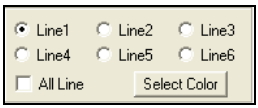
For an Entire Group

1. Upon clicking **Border** the following screen appears. Change the **Border Width** to **0**.

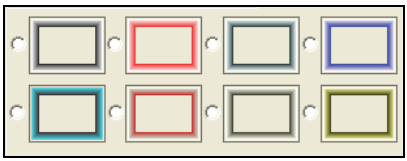


2. You can also change the border color.

   - Each pixel/line can have a different color



   - 3D border



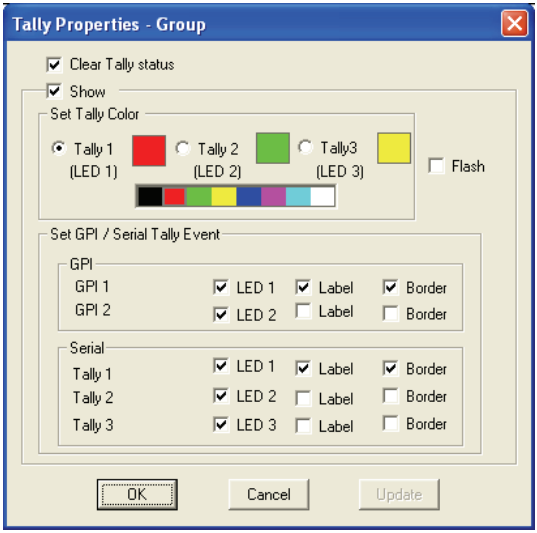
For an Individual Window

To change the border properties for an individual window, right-click the mouse on the window and select **Set Border**, then select the desired color and size.

Activating Tally

The RJ-50-to-GPI terminal block allows for a total of eight inputs to activate Tally, two per window. You can also use the serial port with ASCII, TSI, or TSL to activate the Tally. To change the appearance of the Tally, perform the following steps:

1. Upon clicking **Tally** the following window appears.



   Tally 1, **2**, and **3** are triggered by GPIO.

2. The settings that can be adjusted include **Tally Color**, **LED**, **Label**, **Border**, and **Flash.**

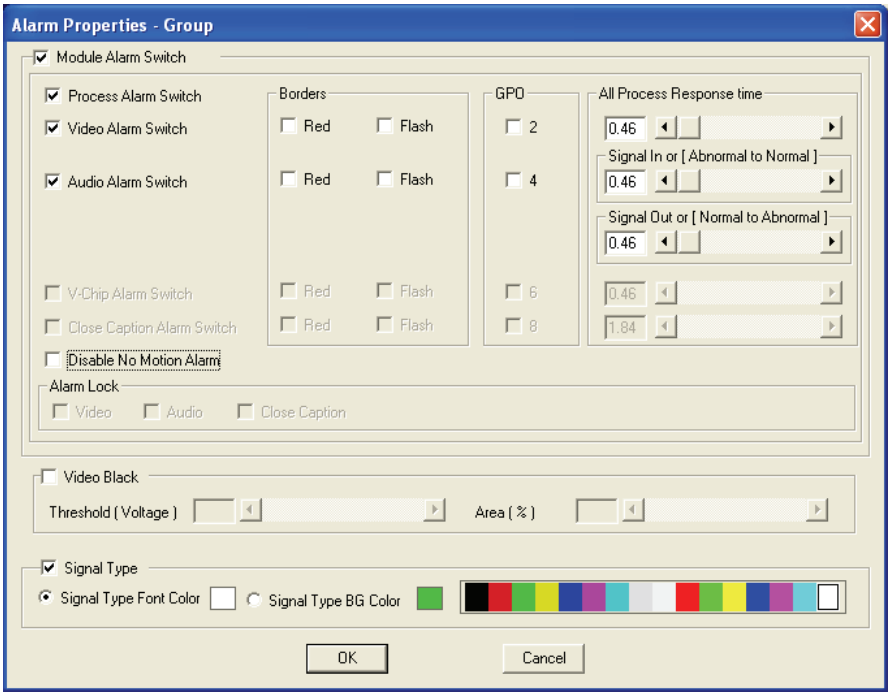
> **NOTE:** Tally 1/2/3 can trigger either Label or Border, but there is only one border or label. If Tally 1/2/3 are triggered simultaneously, the display priority will be Tally 1, then Tally 2, then Tally 3.

Setting Alarm Properties

Allows you to setup the notification when a signal is missing.

For an Entire Group

To set the alarm properties, click **Alarm** and the following screen appears. Click to enable **Module Alarm Switch** that allows you to set the **Process**/**Video**/**Audio Alarm Switch**, adjust the **Signal Type**'s **Font Color** and **B-G** (background) **Color** for alarm in the group. You can also lock the video alarm.



For an Individual Window

To set the alarm properties for an individual window, right-click the mouse on the window and select **Set Alarm**.

- **Module/Process Alarm Switch**: to turn on the alarm setting, make sure that both options are enabled (with checkmark).

- **Video/Audio Alarm Switch**: to turn on/off the “no video” signal. You may set the image border to be **Red** or to **Flash** as warning.
- **GPO**: to assign a GPO contact closure to alarm so that the alarm creates a voltage (supports up to 5 V) on the contact when it is triggered.
- **All Process Response Time**: to set the “no video” alarm response time from **0.23** to **23** seconds.
- **Disable No Motion Alarm**: to disable the alarm that is triggered when no motion is detected.
- **Alarm Lock**: once the signal gets lost but re-gains it back afterwards, the warning will still be shown on the screen. This feature is to notify you a problem happened but no one noticed it right away.
- **Video Black**: to turn on/off the “video black” alarm that is triggered by setting the threshold (brightness level of image) in relation to the area (percent).
- **Signal Type**: sets the signal’s font and background color. When this option is enabled, the video’s signal type will be displayed on the monitor display.

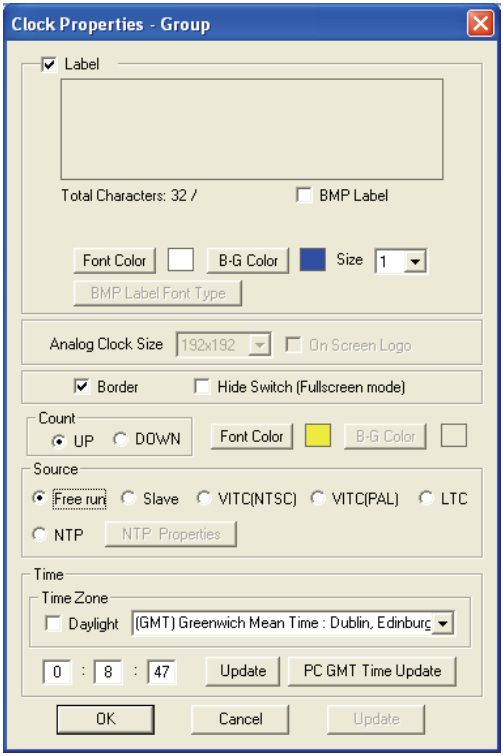
Setting Clock Properties

NOTE: Make sure to turn on all clocks (see previous section) before setting the clock properties.

To set the clock properties, click **Clock** to adjust the **Font Color**, **B-G** (background) **Color**, and font **Size** for all clocks in the group. You can also set the **Analog Clock Size**, **Border**, **Hide Switch** (full screen mode), **Count** (up/down), **Font Color**, **Source**, and **Time Zone**.

BMP Label allows you to activate the universal fonts for clock by performing the following steps –

1. Click to enable the **BMP Label** checkbox (with checkmark).
2. Click the **BMP Label Font Type** button.
3. When the Font window appears, set the **Font**, **Font style**, and **Size**. Then click **OK**.

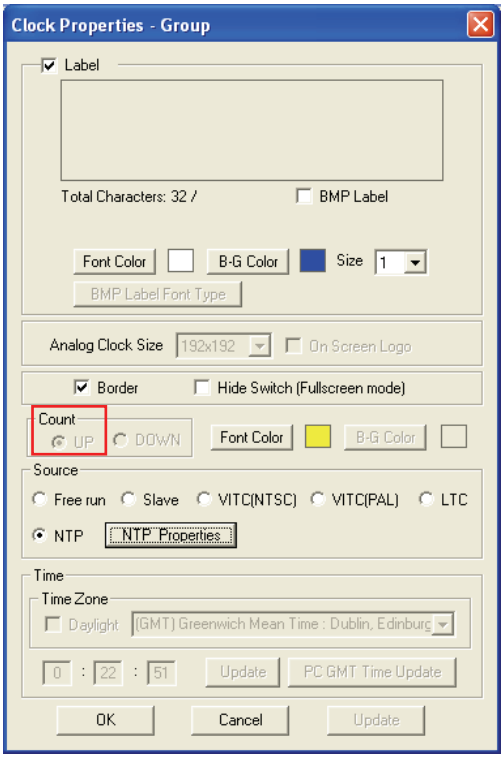


The analog clock works differently compared to the digital clock in that you cannot use the drag-and-drop feature to re-size. You can only select from the following: **192×192**, **224×224**, **256×256**, **320×320**, or **384×384**.

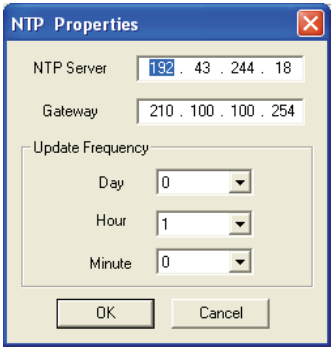
To activate the time code feature, on the **Source** portion click the mouse to select **Free Run**, **LTC**, or **VITC (NTSC/PAL)**. You can also synchronize the clock from the slave module by clicking the mouse on **Slave** to select it. Then click the **Update** button (on the lower right portion) and then click **OK**.

The **NTP** time code feature allows the MCC-8004 series to synchronize the clock with an external NTP time server. The **IP** port on the rear of the MCC-8004 series can control as well as receive time code information at the same time. To set up the NTP time code, perform the following steps:

1. Make sure that **Count → Up** is selected.



2. On the **Source** portion click the mouse on **NTP** to select it. Then click the **NTP Properties** button and the following screen appears.



3. Enter the IP address of the **NTP Server**, the default **Gateway** (use **`ipconfig`** in Windows DOS mode to find out), then set the time interval that the clock will be updated.

4. Select the **Time Zone** in the drop-down menu and click the mouse on the **Daylight** checkbox to select DST (daylight saving time) when applicable.

5. Click **Update** (on the lower middle portion) and then the **OK** button.

NOTE: You may be required to exit the Galaxy program by first saving the new settings to flash memory, then restarting the Galaxy program before the clock can be updated.

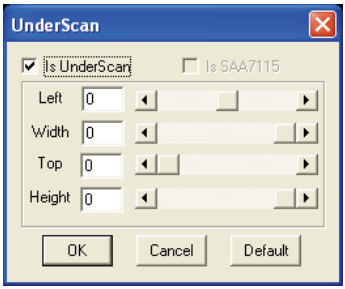
Underscan

The technique that allows you to extend the raster (the overall area that is scanned by the electron guns) closer to the edge of the monitor's bezel is called overscanning. The opposite occurrence when the display image is focused toward the middle of the monitor display is called underscanning.

You may need to use this function when the composite (PAL/NTSC) video source entering the MCC-8004 series causes lines of text appearing on the side (any) to be cut off. Use underscan to allow the cut off portions to be made visible.

NOTE: Be careful when trying to decrease the size of the video image in the viewable area. To adjust for this occurrence, you need to adjust both the horizontal and vertical sizes and phases.

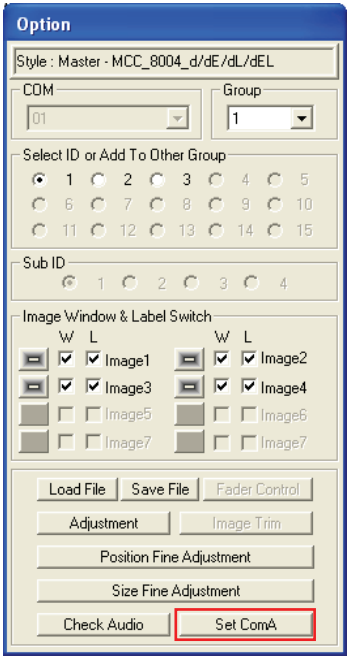
Click **Under Scan** and the following screen appears. Click the checkbox to enable **Is Under Scan**, then use the slider to set the **Left** (**–128** ~ **126**) / **Width** (**–34** ~ **0**) / **Top** (**0** ~ **18**) / **Height** (**–16** ~ **0**). Click **OK** to exit.



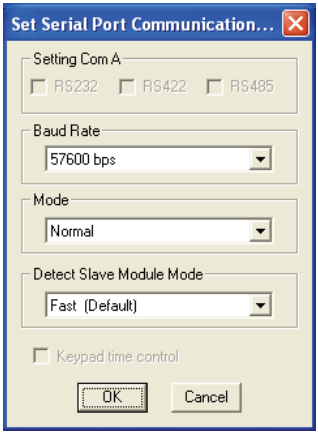
Setting COM Ports

By default the COM port is set to normal and baud rate set to 57600 bps to configure the serial port of the module with PC for configuration and control. There are two methods for setting COM port. To set the COM port, perform the following steps:

1. Click **COM A**, or on the **Option** window click **Set COM A**.



2. The following screen appears. Select the **Setting COM A** option (if available).



3. Set the **Baud Rate**.

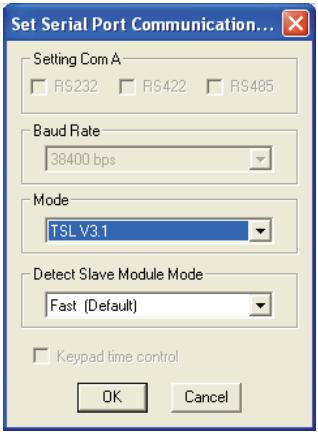
> **NOTE:** When cascading with other MCC-8004 series, the baud rate should set to **57600 bps**.

4. Select the **Mode**.
   - **Normal** – for configuring the serial port of the module with PC configuration and control.
   - **AVR** – for configuring the serial port of the module with AVR connection.
   - **Load File** – for use with the SCP (Simplified Control Panel) keypad.
   - **TSL V3.1** – for configuring the serial port of the module with TSL connection. The initialization process is different so the same TSL connection for other Avitech products may not function correctly with the MCC-8004 series without additional changes.
5. Select the **Detect Slave Module Mode** (**Fast** – **Default**).
6. After setting COM A, you may be prompted to close the Galaxy program and power cycle (shutdown and restart) the module.

TSL

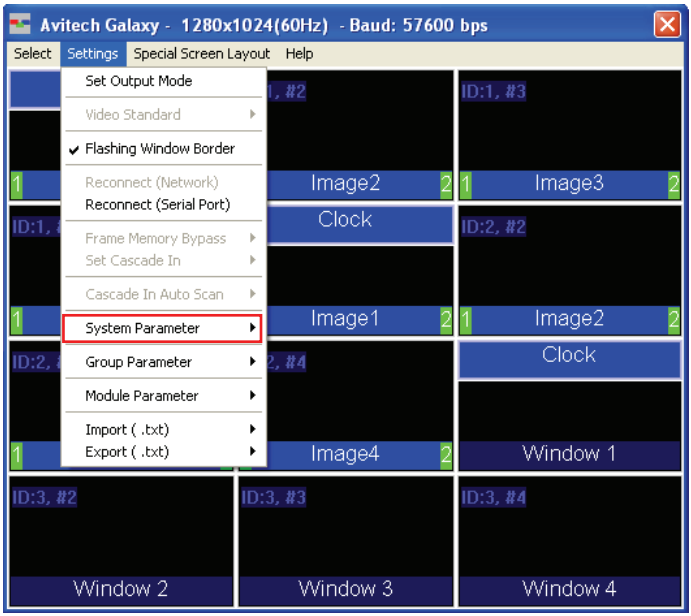
The MCC-8004 series includes one RS-232 port that is used for connecting to a PC for configuration control and connecting to TSL controller. One TSL port of the TSL controller is needed for connecting to the first module of each group. To setup the configuration, perform the following steps:

1. Select **Settings → Group Parameter → COM A**.
2. On the **Mode** drop-down menu select **TSL V3.1**. The **Baud Rate** will automatically adjust to **38400 bps** (according to TSL specifications).

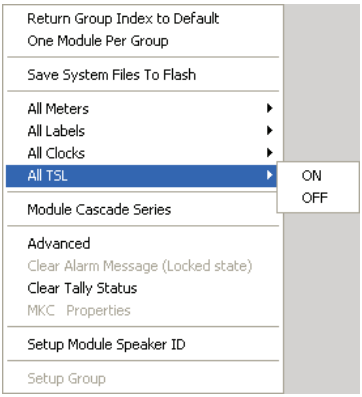


3. Save and exit the Galaxy program – this can also be done once all the parameters have been configured.

4. By default all windows are enabled for the TSL protocol. This can be changed for an individual window, on a group basis, or at the system level by clicking **Settings → System Parameter**.



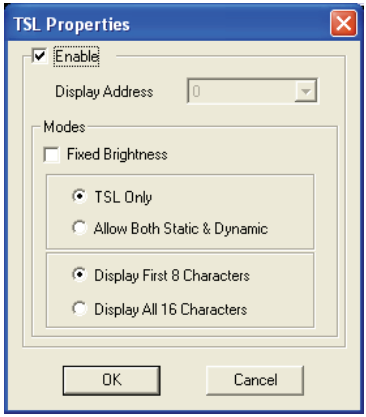
5. Click **All TSL**, and then select **ON/OFF**.



For an Entire Group

1. Select **Settings → Group Parameter → TSL**.

2. Ensure that **Enable** is selected (with checkmark). If it is unchecked, only static labels will be displayed.



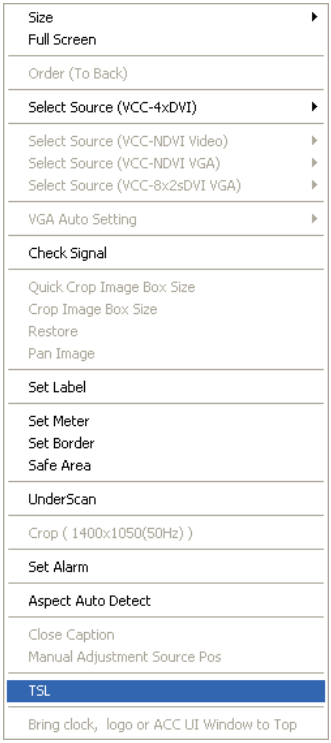
3. Specify the **Display Address** (ranges from **0** to **126**). The address should match the TSL controller configured address corresponding to the router output feeding the corresponding Avitech input.

4. If you want to display dynamic labels then click the radio button to select **TSL Only**. If you want to display both the static and dynamic labels, click the radio button to select **Allow Both Static & Dynamic**.

5. To display 8 or 16 dynamic characters (in case the TSL implementation allows it), click the radio button to select the corresponding options. This concludes the TSL setup on the group level.

For an individual window

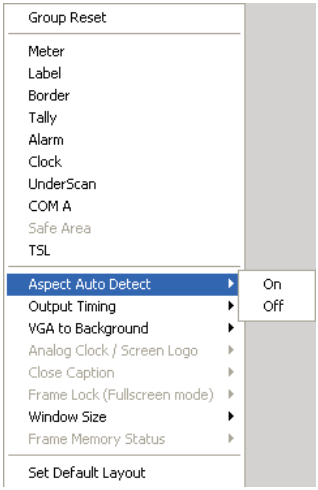
Perform the above same steps for each window by right-clicking the mouse on each individual window, then clicking **TSL** to set the **TSL Display Address**.



NOTE: When dynamic labels are displayed, bitmap fonts cannot be used for displaying static and/or dynamic labels.

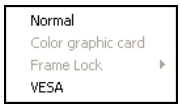
Aspect Auto Detect

Allows you to turn on/off automatic detection of the input signal's aspect ratio. For HD-SDI input signal the aspect ratio will be 16:9; for SD-SDI / composite the aspect ratio default setting is 4:3.



Output Timing

There are two output timings namely **Normal** and **VESA**. **Normal** output timing is designed for some brands of monitor display which do not support the **VESA** standard. The default setting for output timing is **Normal**.

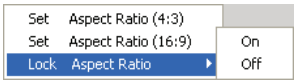


VGA to Background

Allows you to alter the sequence of a particular cascading window that appears on the monitor display. By default Window 1 should appear on top of Window 2 but you can move it to be behind Window 2 into the background.

Window Size

There are three window sizes which could display all the windows in a group namely, **4:3**, **16:9**, or **Lock Aspect Ratio**.



When changing the width of the window, the height will automatically adjust to match the aspect ratio. When **Lock Aspect Ratio** is set at **On**, the aspect ratio of the video display will be maintained even if the window is stretched. If the image is **4:3** and it is stretched to **16:9**, the result is two vertical black bars appearing on either side of the display. If the image is **16:9** and it is scaled down to **4:3**, then it will have a letterbox effect.

Set Default Layout

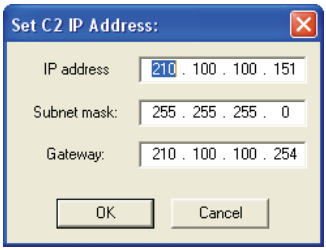
When you have multiple units cascaded together, you can quickly show all the windows by selecting **Set Default Layout**.

Module Parameter

The following are the items appearing on **Module Parameter**.

IP Address

Allows you to change to an IP address different from the default one.



Auto Parameter

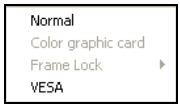
The MCC-8004 series can automatically detect the display's optimum aspect ratio. To enable or disable this feature, perform the following steps:

1. Click **Auto Parameter**.
2. Click **Aspect Detect**, then select **On**/**Off** (default setting is **Off**).

NOTE: When the **Aspect Detect** option is set to **On**, all the presets will be displayed in the optimum aspect ratio.

Output Timing

There are two output timings namely **Normal** and **VESA**. **Normal** output timing is designed for some brands of monitor displays which do not support the **VESA** standard. The default setting for output timing is **Normal**.



Clock Window

When the item **All Clocks** under **System Parameter** is set to **On**, a checkmark appears on this item. You can turn on (with checkmark) or off the clock window display. Click on the item to toggle between on/off.

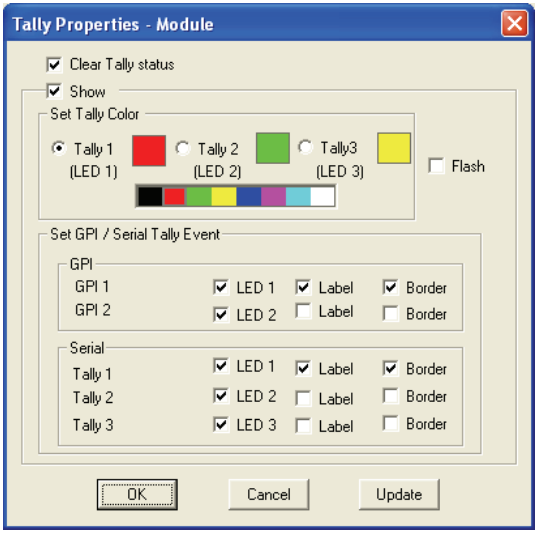
Cascade in VGA Only

You can turn on (with checkmark) or off the cascade mode with VGA signal only. Click on the item to toggle between on/off.

Activating Tally

The RJ-50-to-GPI terminal block allows for a total of eight inputs to activate Tally, two per window. You can also use the serial port with ASCII, TSI, or TSL to activate the Tally. To change the appearance of the Tally, perform the following steps:

1. Click **Tally** and the following screen appears:



   Tally 1 and **2** are triggered by GPIO while **Tally 3** is triggered via serial communication.

2. The settings that can be adjusted include **Tally Color**, **Label**, **Border**, and **Flash**.

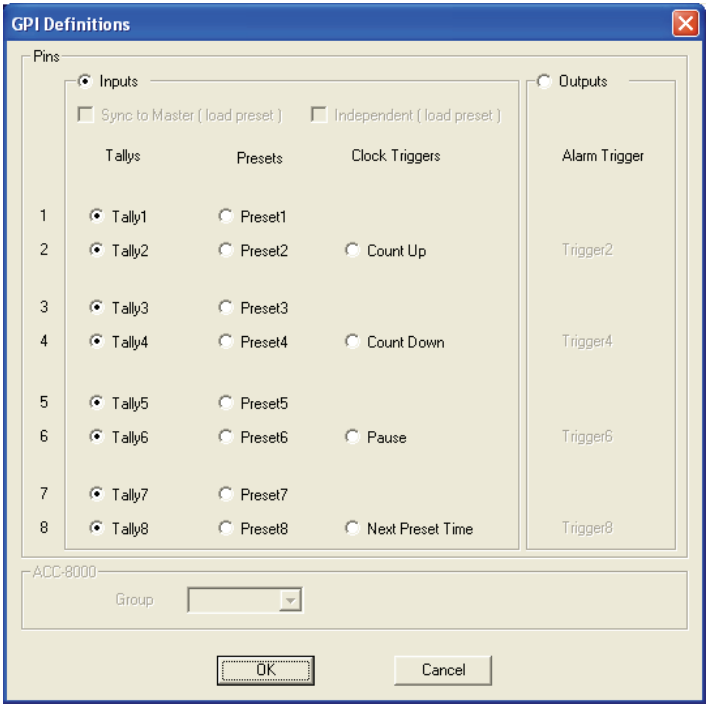
VGA to Background

When the item **VGA to Background** under **Group Parameter** is set to **On**, a checkmark appears on this item. This allows you to alter the sequence of a particular cascading window that appears on the monitor display. By default Window 1 should appear on top of Window 2 but you can move it to be behind Window 2 into the background. Click on the item to toggle between on/off.

GPI Definitions

Eight positions can be found on the RJ-50-to-GPI terminal block that are assignable to either activate Tally (two per video input) or to load presets, but each pin can only be assigned to one task. To assign the definition of each GPI, perform the following steps:

1. Upon clicking **GPI Definitions**, the following screen appears:



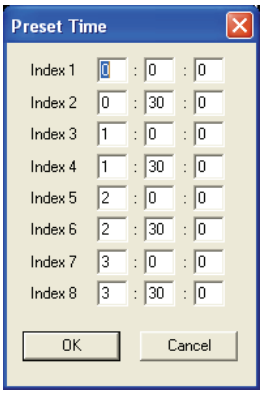
2. After you have finished assigning tasks to each GPI, click **OK** to finalize the changes.

NOTE:

- The RJ-50-to-GPI terminal block adapter has eight positions that can each be used for setting Tally and loading presets.
- By default, the terminal block is used to turn on/off the Tally for each window:
  – Position 1 + GND = turns on main Tally for window 1.
  – Position 2 + GND = turns on secondary Tally for window 1.
  – Position 3 + GND = turns on main Tally for window 2.
  – Position 4 + GND = turns on secondary Tally for window 2.
  – Position 5 + GND = turns on main Tally for window 3.
  – Position 6 + GND = turns on secondary Tally for window 3.
  – Position 7 + GND = turns on main Tally for window 4.
  – Position 8 + GND = turns on secondary Tally for window 4.

Preset Time

By using the RJ-50-to-GPI terminal block, allows you to set the count up or count down the preset time (**Index 1** ~ **8**) that can be recalled using GPIO.

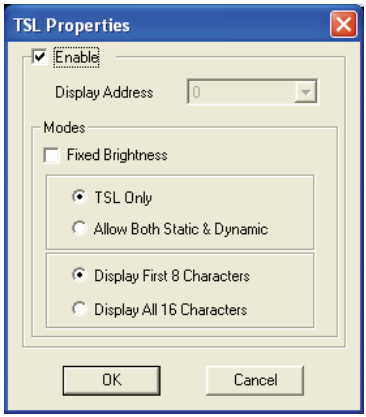


TSL

NOTE: Make sure that you have selected the **TSL** configuration on the previous setting under **Group Parameter** (see previous section).

To change the TSL configuration of a particular module, perform the following steps:

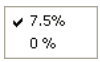
1. Click **TSL** and when the following screen appears, ensure that **Enable** is selected (with checkmark). If it is unchecked, only static labels will be displayed.



2. Specify the **Display Address** (ranges from **0** to **126**). The address should match the TSL controller configured address corresponding to the router output feeding the corresponding Avitech input.
3. If you want to display dynamic labels then click the radio button to select **TSL Only**. If you want to display both the static and dynamic labels, click the radio button to select **Allow Both Static & Dynamic**.
4. To display 8 or 16 dynamic characters (in case the TSL implementation allows it), click the radio button to select the corresponding options. This concludes the TSL setup on the module level.

NTSC Black Level

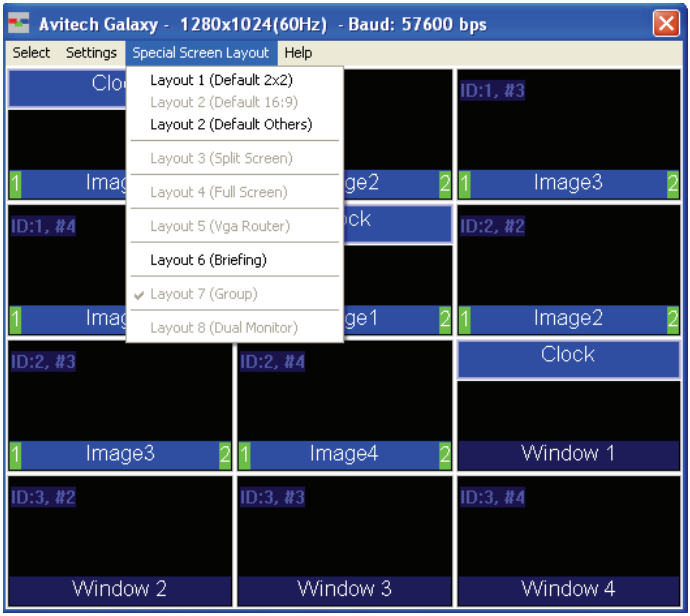
Allows you to set the NTSC black level by selecting **0 %** or **7.5 %**. Default setting for the **NTSC Black Level** is **7.5 %**.



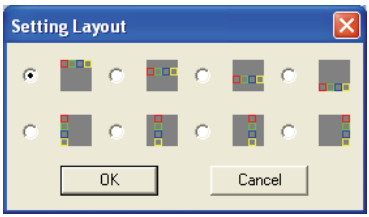
NOTE: Only supports composite video input source.

Special Screen Layout Menu

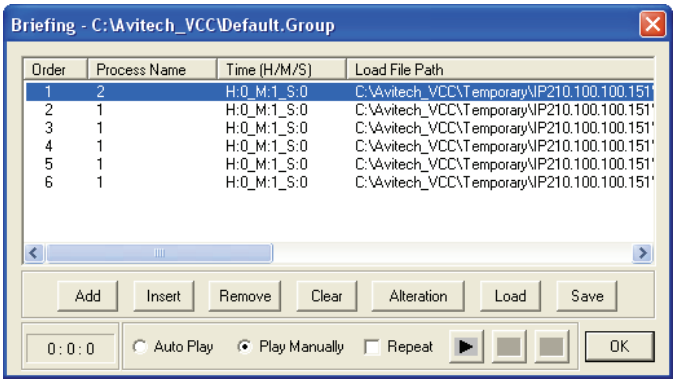
Some special screen layouts are available for the MCC-8004 series namely (layouts that are grayed-out signify none availability for your particular configuration):



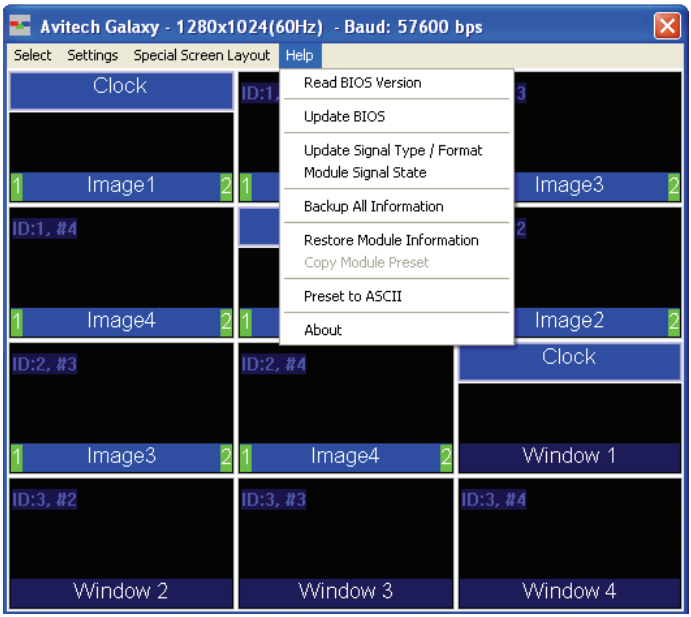
- **Layout 1 (Default 2×2)** – quad split mode
- **Layout 2 (Default Others)** – rows or columns of four windows. Upon clicking on this item select from the following layout as shown on the next screen.



- **Layout 6 (Briefing)** – cycle between presets for a slideshow effect.



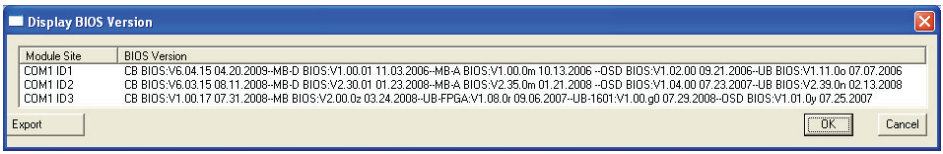
Help Menu



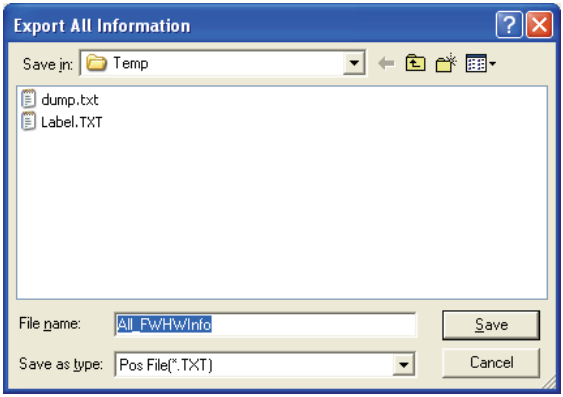
Read BIOS Version

To find out the Avitech MCC-8004 series module firmware version, perform the following steps:

1. Click **Read BIOS Version**. When the following screen appears, click **Export**.

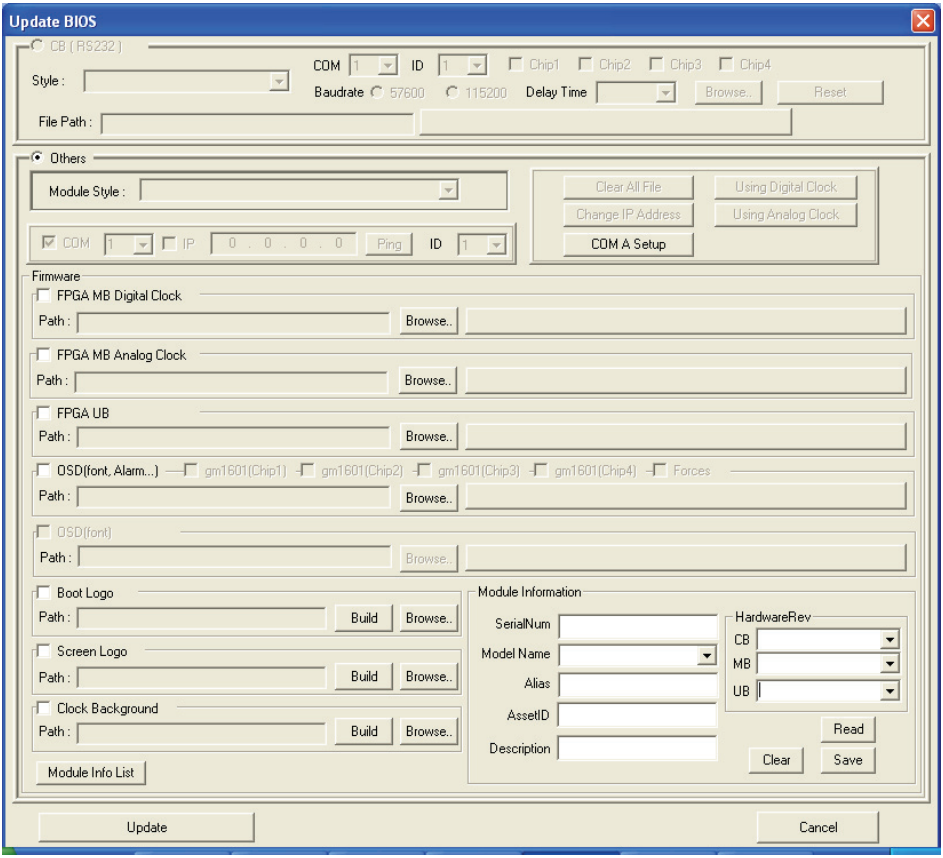


2. Assign a filename and click **Save** to save the data.



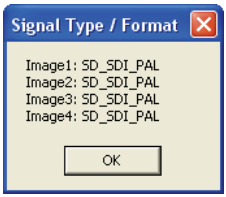
Update BIOS

Allows you to update the BIOS / firmware version of your MCC-8004V series. Upon clicking **Update BIOS** the following screen appears (see the succeeding chapter for details on upgrading the firmware).



Update Signal Type / Format

To update signal type / format, click **Update Signal Type / Format** and the next sample screen shows the entire image' signal type / format.



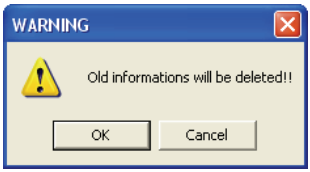
Module Signal State

To find out the module's signal state, click **Module Signal State**.

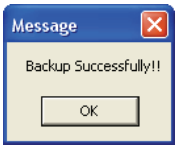
Backing Up Presets

To backup a preset, perform the following steps:

1. Click **Backup All Information**, the following warning message appears. Click **OK** to continue.



2. The following message appears when back-up is successful, click **OK** to continue.



This will backup all saved presets and system configuration files to **`c:\Avitech_VCC\Backup\XXXX#_#`**

> **WARNING:** Everything in the **Backup** folder will be erased. If you have previously backed up presets, they will all be written over when you backup presets again. If you want to keep the old presets, move the entire **Backup** folder to a temporary directory (e.g., **`c:\temp`**).

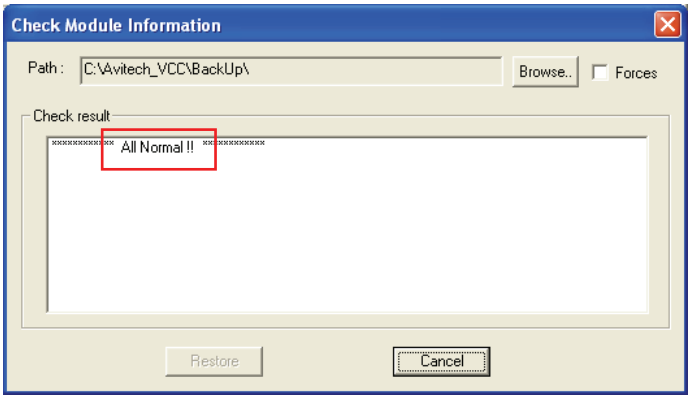
This will create the following directories:

- **c:Avitech_VCC\Backup**
- **c:Avitech_VCC\Temporary**

Restoring Presets

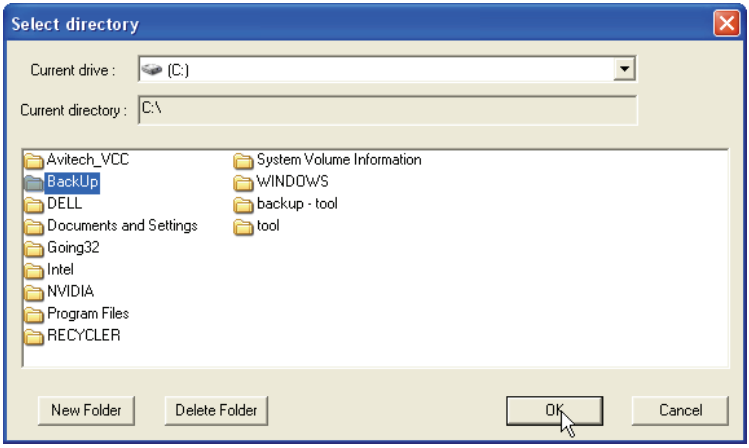
To manually restore a preset, perform the following steps:

1. Upon clicking **Restore Module Information**, you should see a progress bar showing the preset being loaded into the MCC-8004 series.
2. When the following screen appears, the checking result confirms that everything is normal. If that is the case then click **Cancel** to exit restoring of preset(s). You may skip steps 3 and 4.

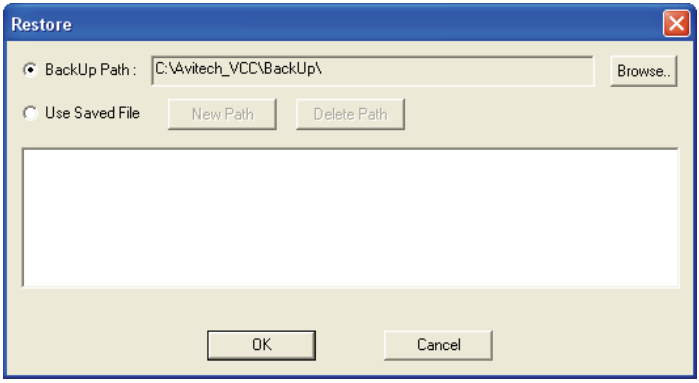


If the checking results shows an **Abnormal** report, confirm if the backup **Path** is correct. Then click **Restore**.

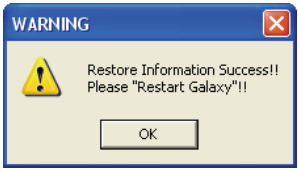
If incorrect, click **Browse** to select the correct location. Then click **OK** to continue.



3. Click **OK** when the next screen appears to continue.

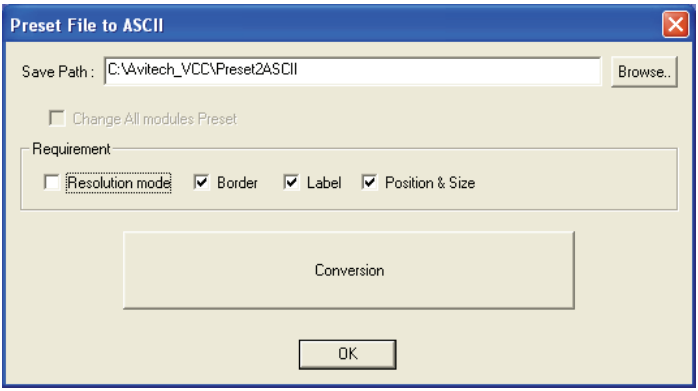


4. Click **OK** when the next screen appears to restart the Galaxy program.



Converting Preset File to ASCII Format

1. Click **Preset to ASCII**. When the following screen appears, confirm if the **Save Path** is correct. If incorrect, click **Browse** to select the correct location.



2. Select the **Requirement**s, and then click **Conversion**.
3. Click **OK** to exit.

Read Galaxy Information

Click **About**. You should see a pop-up box showing the Galaxy program information.

Quick Keys – Change Window to/from Full Screen Mode; Swap Window Contents

Two quick keys are available that allows you to quickly bring a window to/from full screen mode; as well as swap the contents from one window to another by performing the following steps:

1. To change to full screen mode, double-click the mouse on a window. Double-click again to return from full screen mode.
2. To access the swap window quick key, move your cursor to the bottom left hand corner of a window until a capital letter **S** appears.

3. Click on the capital letter **S** to select the source window and then click again at a destination window where you want to swap the contents from the source. This will swap all the contents and properties of the source window to the destination window.

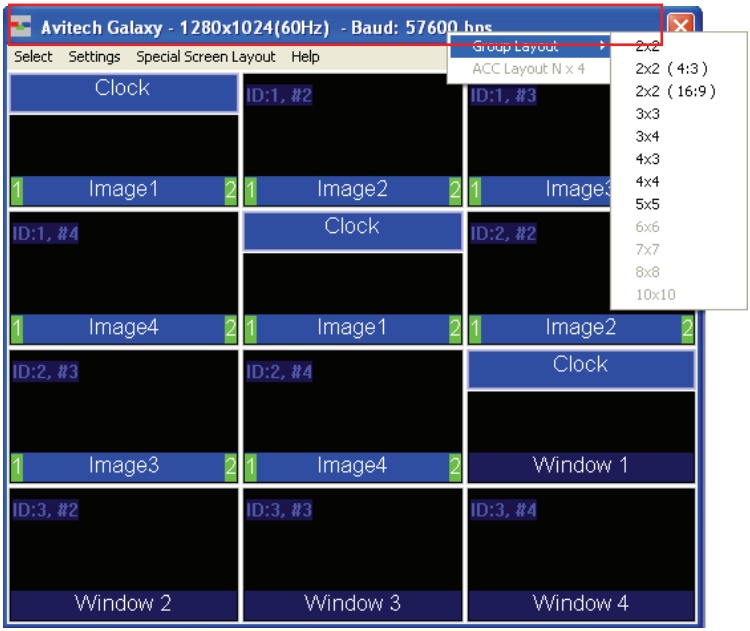
Window Layout

Setting the Default Layout (by Group)

When you have multiple units cascaded together, you can quickly show all the windows by selecting **Settings → Group Parameter → Set Default Layout**.

Arranging Windows (by Group)

To quickly setup the layout for your video windows, right-click the mouse on the blue information bar to access the **Group Layout** menu. Select from **2**×**2** up to **5**×**5** as possible grid positions on the monitor display.

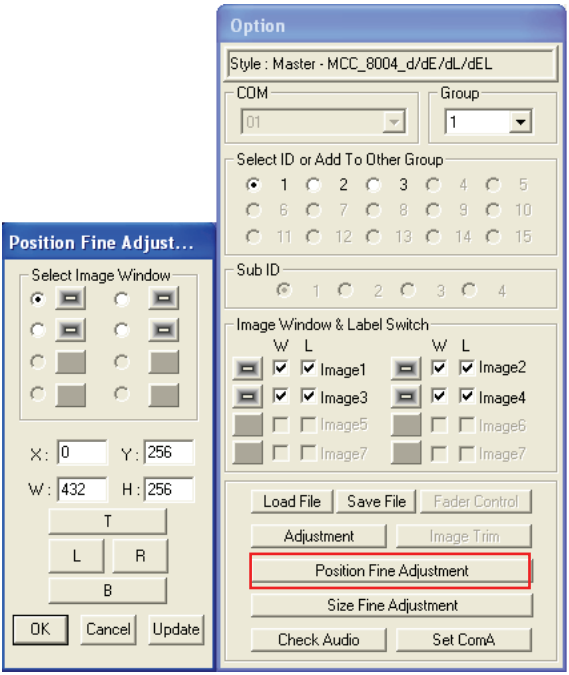


Repositioning an Individual Window

To reposition a window, perform the following steps:

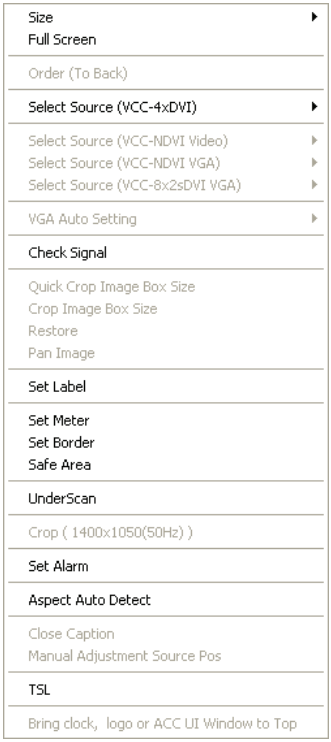
1. Drag the center of a window and drop to a new position and it will update on the monitor display. Or,

2. Use the **Position Fine Adjustment** menu to adjust the position of any window in a pixel by pixel basis. Keep in mind that the width increases in 16 pixel increments and the height in 1 pixel increments.



Mouse Right-click Menu

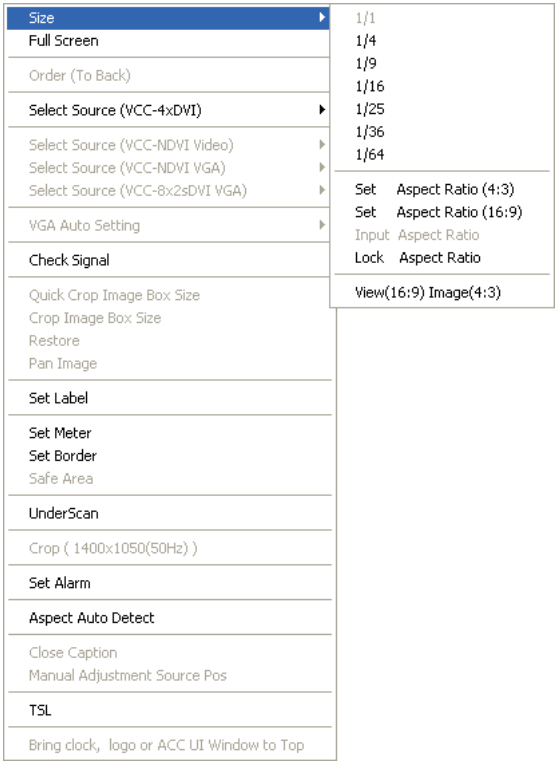
To change the properties of an individual window, right-click the mouse on the particular window to access the window's menu.



Resizing Window

To resize a single window to one of the preset sizes, perform the following steps:

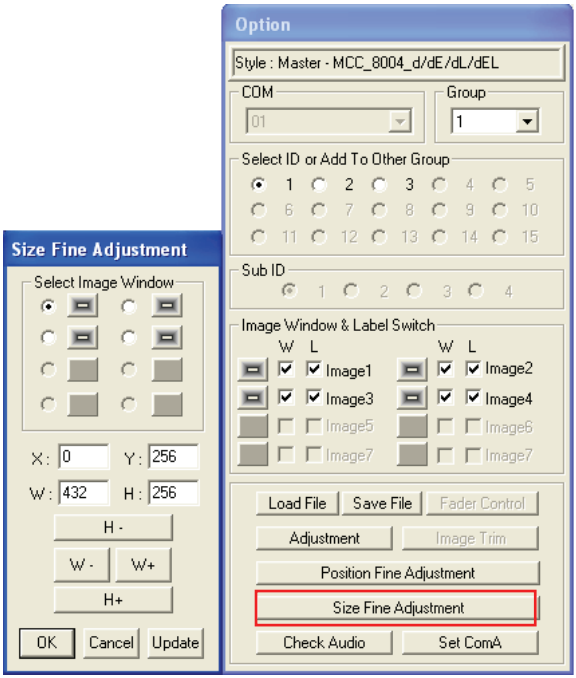
1. Right-click the mouse on a particular window and select **Size** followed by the desired preset size selection.



NOTE: This option is not available for the scaleable DVI input.

2. Or, manually resize a window by dragging the border of a window to the desired size. Keep in mind that there is a scaling limitation for each window that limits the maximum scaleable size to 816×465 pixels for NTSC video and 816×560 for PAL video.

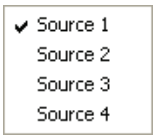
3. Alternatively, you can use the **Size Fine Adjustment** menu to adjust each window on a pixel by pixel basis. Keep in mind that the width increases in 16 pixel increments and the height in 1 pixel increments.



4. On a particular window select **Full Screen** to maximize the image and fill up the whole screen.

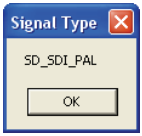
Select Source

Allows you to specify the DVI signal source when cascading with the VCC-8000 series. The selected source would have a checkmark.



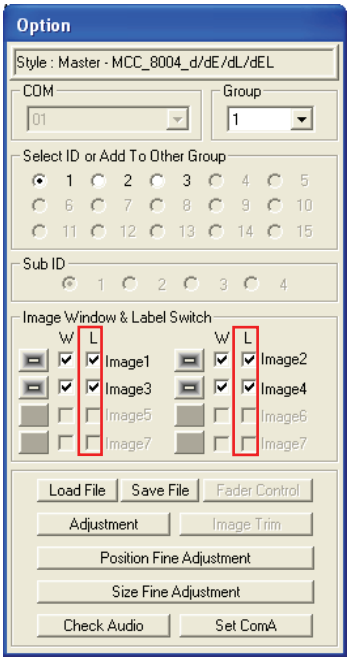
Check Signal

To find out the video signal being fed into the selected window, right-click the mouse on a particular window and click **Check Signal**. The following screen appears.



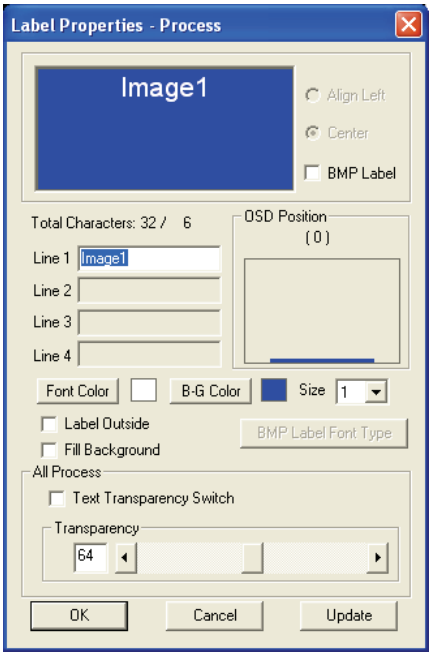
Turning On/Off the Label

1. The **Option** window has a checkbox that can be used to turn off the label (**L**) for each window.



2. To turn off a label, find the checkbox that represents the selected window and check to enable or un-check to disable the **L**abel.

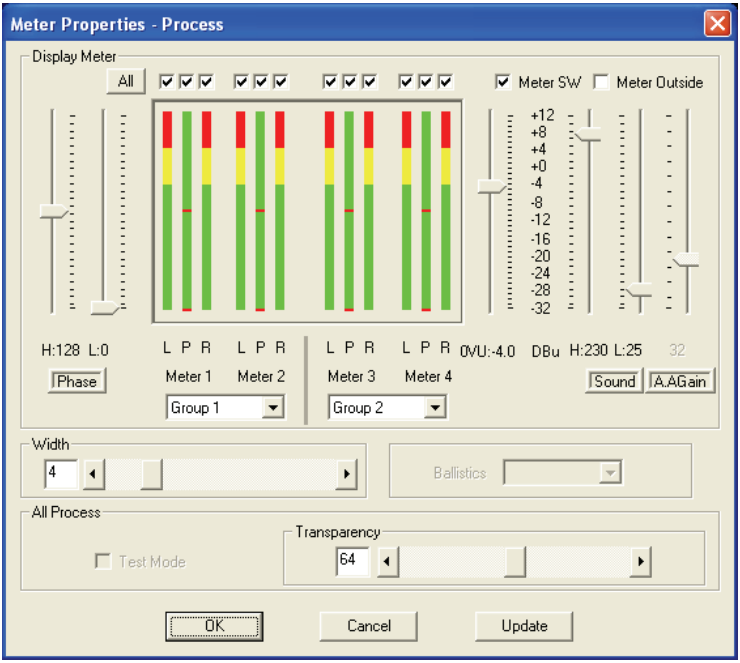
3. Upon right-clicking on a particular window, select **Set Label** and the following screen appear. Refer to a previous section for details on setting the **Label Properties**.



NOTE: When output resolution is set to 800x600, the label size can support up to two (36 pixels) only.

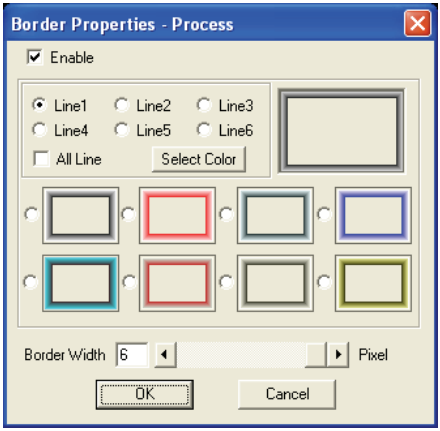
Setting the Meter Properties

Allows you to change the audio meter properties. Upon right-clicking a particular window, select **Set Meter** and the following screen appears. Refer to a previous section for details on setting the **Meter Properties**.



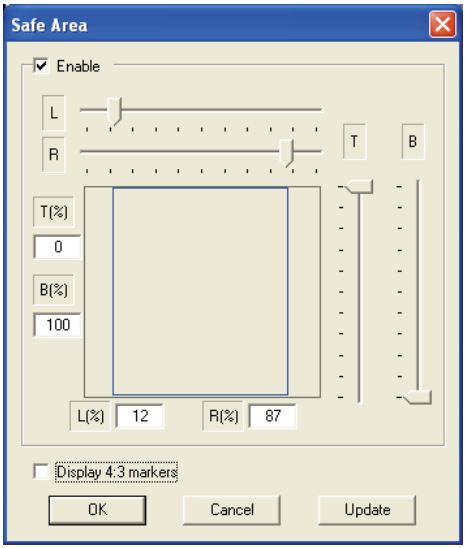
Turning On/Off the Border

Allows you to change the properties for the border. Upon right-clicking on a particular window, select **Set Border** and the following screen appear. Refer to a previous section for details on setting the **Border Properties**.



Safe Area

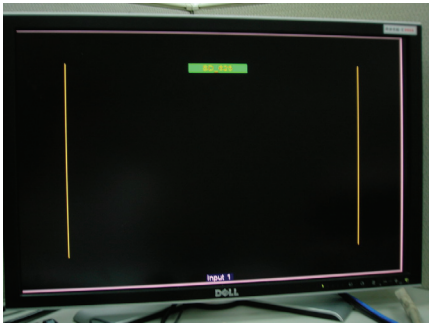
Upon right-clicking on a particular window, select **Safe Area** and the following screen appear.



The following should be noted when setting the safe area:

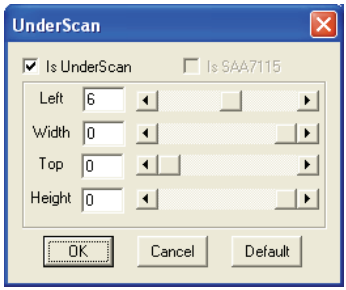
- Luminance is reduced outside the safe area.
- **Enable** – can be enabled/disabled for each source window. By using the slider, freely adjust the horizontal (**L**eft and **R**ight) and vertical (**T**op and **B**ottom) markers.

- **Display 4:3 markers** – fixed 4:3 markers (vertical yellow lines) delineates the 4:3 area in a 16:9 window.



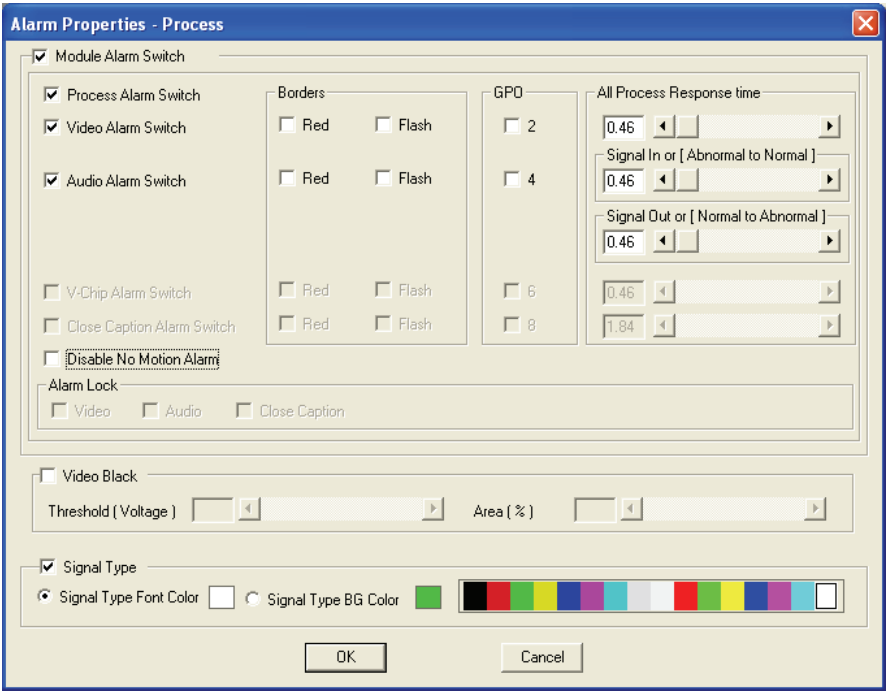
Underscan

Upon right-clicking a particular window, select **Underscan** and the following screen appears. Refer to a previous section for details on setting the underscan parameters.



Set Alarm

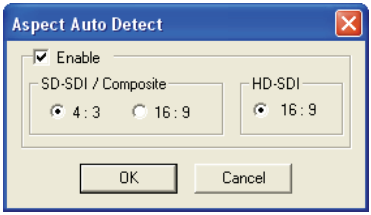
Upon right-clicking a particular window, select **Set Alarm** and the following screen appears. Refer to a previous section for details on setting the **Alarm Properties**.



Aspect Auto Detect

Allows you to set the input signal's aspect ratio of a particular window. If the input signal is of a different aspect ratio than the monitor in which it is displayed, you may change the monitor's aspect ratio to display the signal without deformation.

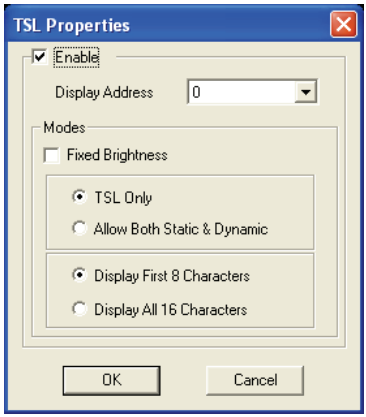
1. Right-click the mouse on a particular window and click **Aspect Auto Detect**. When the next screen appears click the mouse to select **Enable** and then select the desired aspect ratio.



2. Then click **OK**. The available selection for HD-SDI is **16:9**; while for **SD-SDI / Composite** you can switch between **4:3** and **16:9**.

Displaying Static / Dynamic Labels

Allows you to display static/dynamic labels by right-clicking a particular window, select **TSL** and the following screen appears. Refer to a previous section for details on setting the **TSL Properties**.



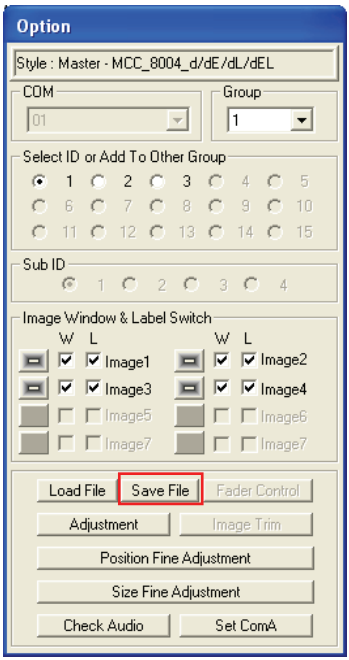
Saving to a Flash File

There are two instances that you will need to use the save to flash feature:

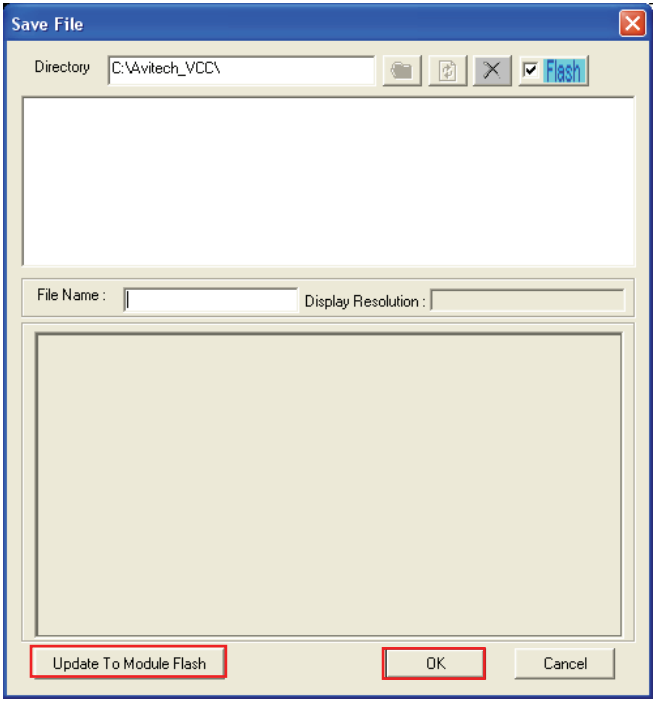
- After creating the master layout and you want the MCC-8004 series to load it again when the unit is power cycled (shutdown and restart).
- After you are done saving presets and you want to save all the presets that were created into the internal flash memory of the module. If this action is skipped, the module will lose all the presets that were created.

To save to flash, perform the following steps:

1. Click **Save File** on the **Option** window.



2. When the following screen appears, click **Update to Module Flash**, and then click **OK**.



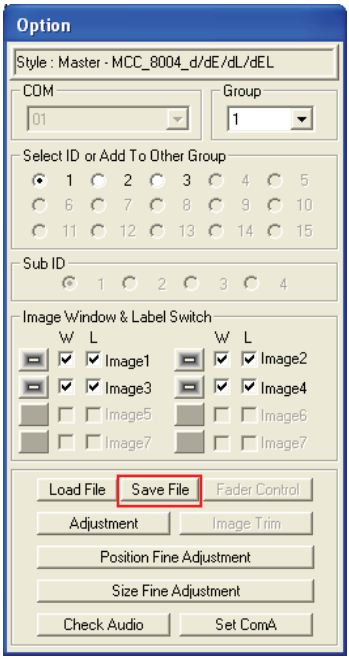
Or, close the Galaxy program and select **Yes** when prompted to save.

Saving a Preset

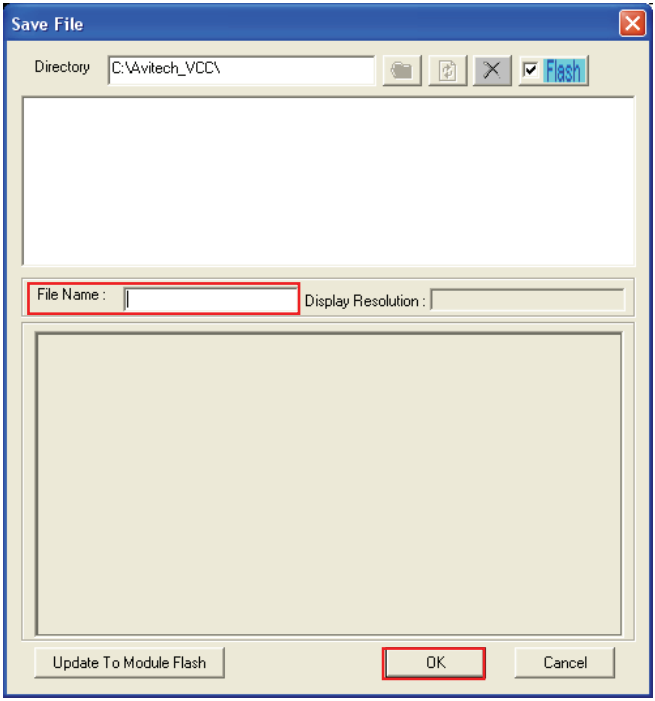
All the presets you create are stored in the MCC-8004 series and not in the computer that is running the Galaxy program. In order to write all the presets into the internal flash memory of the MCC-8004 series after creating it, you will need to save to flash. To save a preset, perform the following steps:

1. Configure the layout to how you want it to display.

2. Click **Save File** on the **Option** window.



3. When the next screen appears, enter a unique filename for the preset and select **OK** to save.



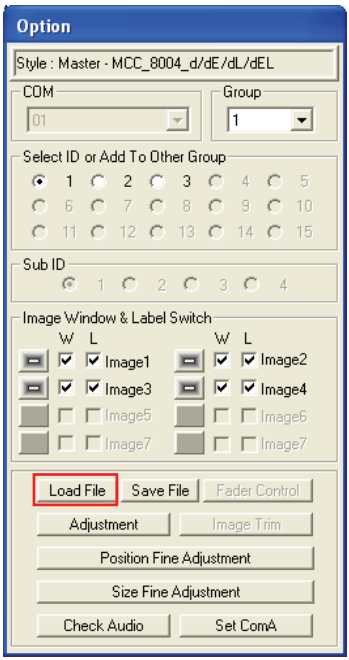
- When using a keypad, use the numbers **0** ~ **9** for your preset names.
- When using the GPI, use the numbers **1** ~ **8** for your preset names.

The file extension **GP#** will be automatically added to the filename.

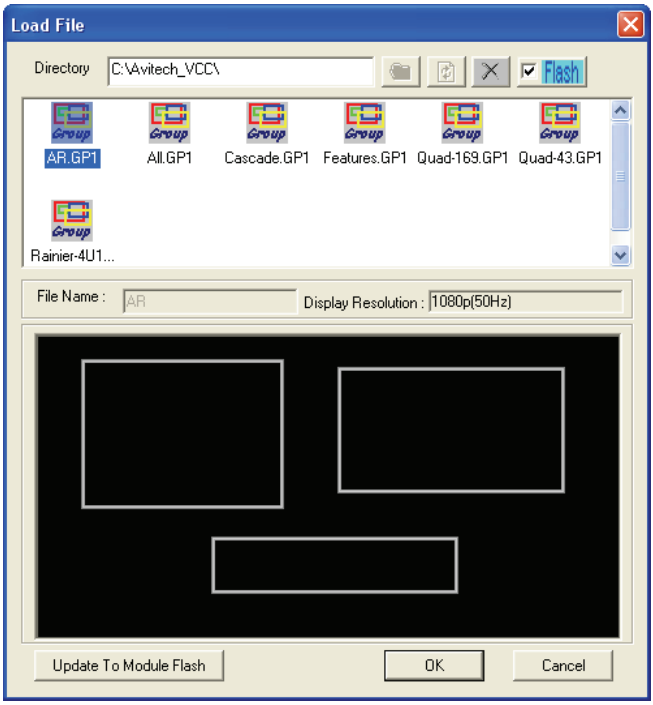
4. Repeat the above steps for each additional preset.
5. After you are done creating presets, load the file that you want to be the master layout, which gets loaded when the MCC-8004 series is powered on.
6. Close the Galaxy program and select **Yes** when prompted to save to flash.

Loading File

1. In the **Option** menu, click **Load File**.

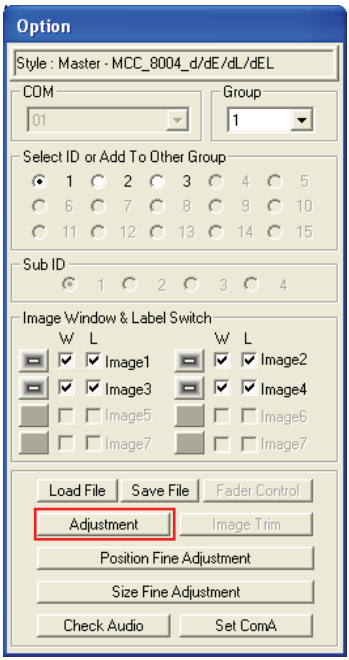


2. Select a saved file then click **OK** to load the preset.

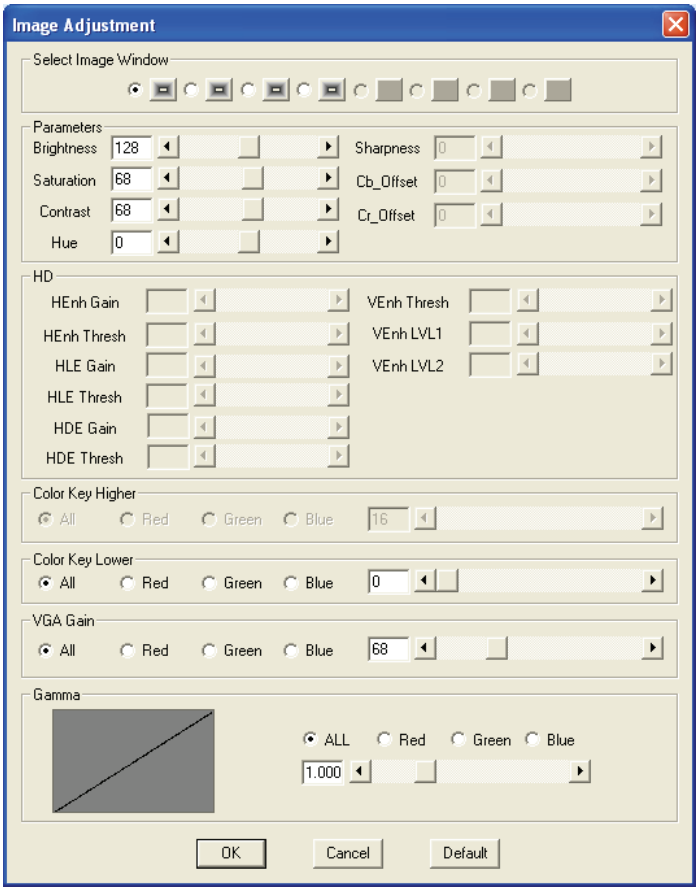


Making Adjustments

1. In the **Option** menu, click **Adjustment**.



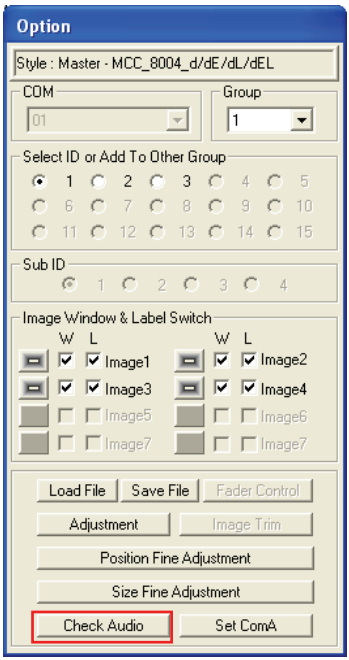
2. The following screen appears.



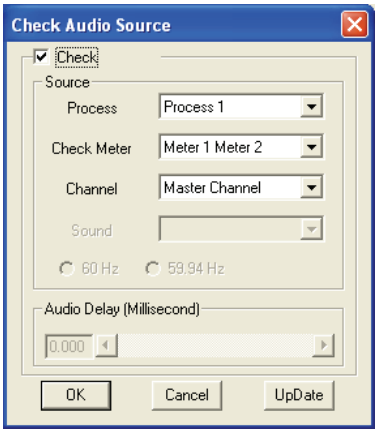
3. **Select** the **Image Window**, then you can adjust the input signal such as **Brightness** (**0** ~ **255**), **Saturation** (**0** ~ **127**), **Contrast** (**0** ~ **127**), **Hue** (**–128** ~ **127**), **Color Key Lower** (**All**/**Red**/**Green**/**Blue**, **0** ~ **255**), **VGA Gain** (**All**/**Red**/**Green**/**Blue**, **0** ~ **255**), and **Gamma** (**All**/**Red**/**Green**/**Blue**, **0.523** ~ **5**) parameters directly by using the sliders or clicking the radio button. Click the **Default** button on the lower right portion of the screen to reset the values to the factory default.

Audio Delay

1. In the **Option** menu, click **Check Audio**.



2. When the following screen appears, click the audio **Check** option.



3. Use the slider to set the **Audio Delay** time **(Millisecond)**.
4. Click on the radio button to select **60** or **59.94 Hz** frequency. Select **60 Hz** when the signal is for HD (high definition); select **59.94 Hz** when it is for 59.94 Hz (1/1.001) to prevent interference on the waveform output.
5. Click the **Sound** drop-down menu to select between **Stereo**, **Mono Left**, or **Mono Right**.

2 Simplified Control Panel

Aside from using the Galaxy program, you can use the optional numerical Simplified Control Panel (SCP) keypad that allows you to quickly recall presets without having to use a computer. This chapter familiarizes you with using the Simplified Control Panel to load up to ten presets saved in the flash memory of the MCC-8004 series.

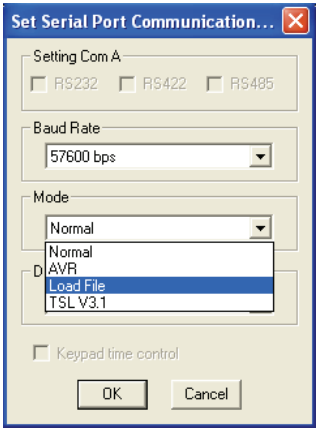
2.1 Using the Simplified Control Panel (Optional)

Preparing the MCC-8004 Series For Use With the SCP Keypad

To prepare the MCC-8004 series for use with the Simplified Control Panel, perform the following steps:

1. Create up to ten presets with filenames **0** ~ **9** (up to ten groups). Refer to the previous chapter on saving presets.

2. Click **Settings → Group Parameter → COM A**. When the next screen appears, select **Load File** on the **Mode** drop-down menu. Then click **OK**.



3. You will be prompted to shutdown the Galaxy program and save to flash.
4. Power off the MCC-8004 series by unplugging the power cord. Then plug in the SCP keypad to the rear panel's **Keypad** port.

   NOTE: If you need to connect again using the Galaxy program, you must first disconnect the SCP keypad.

5. Connect the power cord back to the MCC-8004 series to power on.

Recalling Presets

The MCC-8004 series COM port is automatically set to the following parameters:

- RS-232
- 8-bit data
- 1-stop
- No parity
- 9600 bps baud rate

To recall the presets, perform the following steps:

1. To login to the Simple Control Panel mode press **Enter**.
2. Use the Galaxy program's preset files saved in the MCC-8004 series flash memory.

   The preset filename format is: **X.GPY**
   where **X** = **0** ~ **26**, this refers to preset **0** ~ preset **26**
   where **Y** = **0** ~ **9**, this refers to group **0** ~ group **9**
3. Recall preset mode 1:
   To recall the next preset file, press the **+** (plus) key.
   To recall the previous preset file, press the **–** (minus) key.
4. Recall preset mode 2:
   To recall a specific preset file, press the two number keys. The first number signifies the Group number; the second number signifies the preset number. For example: pressing the **19** number keys would allow the MCC-8004 series to recall the "**9.GP1**" preset file.
5. Recall preset mode 3 (supports recall of preset files **0** ~ **26**):
   Example 1: pressing **1** (one) → **.** (point or period) → **1** (one) → **Enter** (total of four keys) would allow MCC-8004 series to recall the "**1.GP1**" file.
   Example 2: pressing **2** (two) → **.** (point or period) → **1** (one) → **7** (seven) → **Enter** (total of five keys) would allow MCC-8004 series to recall the "**17.GP2**" file.
   Example 3: pressing **3** (three) → **.** (point or period) → **2** (two) → **6** (six) → **Enter** (total of five keys) would allow the MCC-8004 series to recall the "**26.GP3**" file.
6. To save the MCC-8004 series present configuration: press ***** (star or asterisk) → **/** (slash) → **Enter** (total of three keys). During this process (approximately five seconds), make sure that your MCC-8004 series has a stable and uninterrupted power supply.
7. When the DVI-I port has an analog VGA input, the MCC-8004 series can do automatic image adjustment by pressing the following three keys:
   . (point or period) → ***** (star or asterisk) → **Enter**.

8. When the DVI-I port has an analog VGA input, the MCC-8004 series can do automatic gain adjustment by pressing the following three keys:
   . (point or period) → **/** (slash) → **Enter**.

9. To logout from the Simple Control Panel mode just unplug the SCP keypad from the rear panel's **Keypad** port.

3 Avitech ASCII Protocol

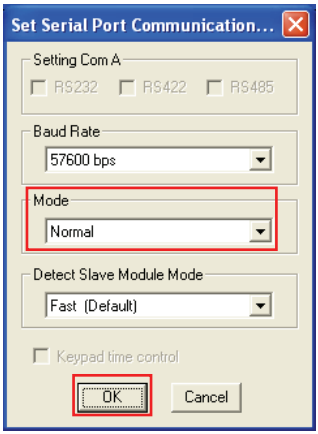
The MCC-8004 series supports the ASCII command prompt interface, you can use HyperTerminal to control your MCC-8004 series. The serial port (**RS-232**) on the MCC-8004 series can also be used to interface with a third-party controller for control over RS-232. This chapter familiarizes you with using the Avitech ASCII Protocol (AAP) of the MCC-8004 series via Microsoft® Windows HyperTerminal function as an example.

3.1 Setting the RS-232 Port

Before using the ASCII Z command interface, make sure that the COM A (RS-232) port on the MCC-8004 series is set at Normal (8-bit data, 1 stop bit, no parity, and no flow control). The default baud rate is 57600 bps. To correctly use the ASCII Z commands, use the Galaxy program's default Group and Module number for the MCC-8004 series. Refer to the previous sections for details.

NOTE:

- To set **COM A** to **Normal**. Click **Settings** → **Group Parameter** → **COM A**. When the next screen appears, select **Normal** on the **Mode** drop-down menu. Then click **OK**.
- Disconnect the SCP keypad if that is connected.



3.2 Setting the HyperTerminal's COM Port

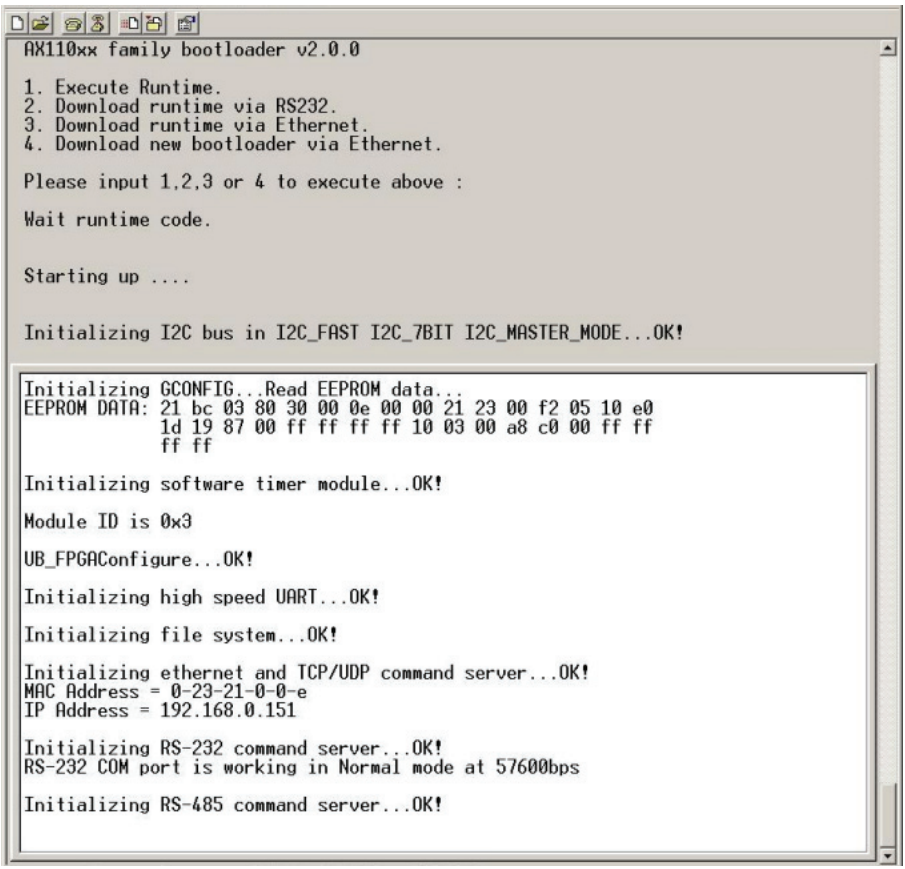
To set the HyperTerminal's COM Port, perform the following steps:

1. Click **Start** → **All Programs** → **Accessories** → **Communications** → **HyperTerminal** to startup the Windows HyperTerminal function.
2. Set the HyperTerminal's COM port to the following settings (same as RS-232 port setting):
   - Baud Rate: 57600
   - Data Bits: 8
   - Parity: None
   - Stop Bits: 1
   - Flow Control: None

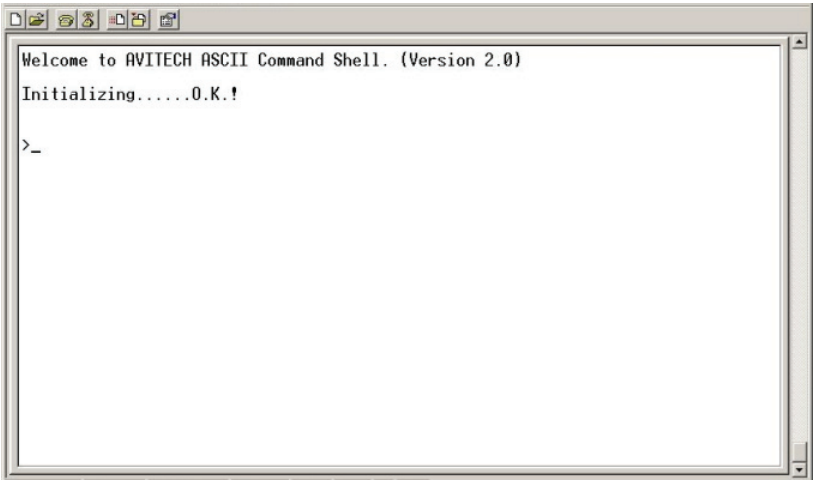
3.3 Entering the ASCII Z Command Interface

To startup the ASCII Z command interface, perform the following steps:

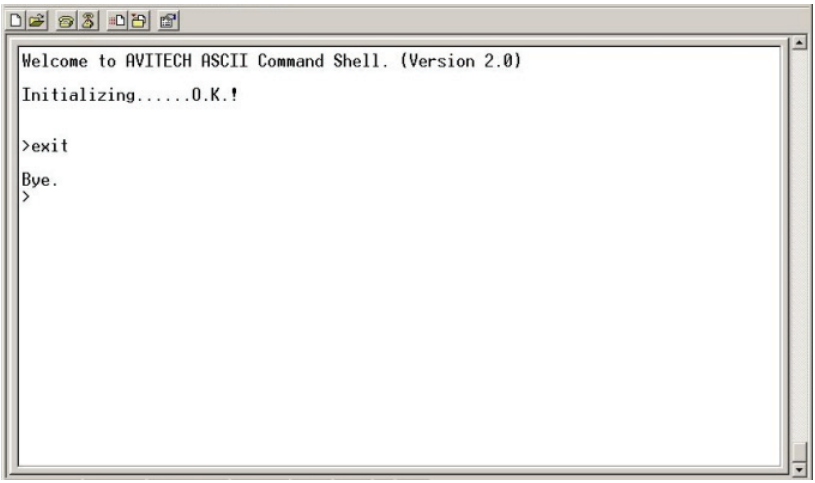
1. Connect the HyperTerminal's COM port (PC) to the MCC-8004 series RS-232 port and make sure that power supply is available.
2. Connect the power cord to the MCC-8004 series so that it will use the default baud rate (57600 bps) to transmit the startup signal.


AX110xx family bootloader v2.0.0
1. Execute Runtime.
2. Download runtime via RS232.
3. Download runtime via Ethernet.
4. Download new bootloader via Ethernet.
Please input 1,2,3 or 4 to execute above :
Wait runtime code.
Starting up ....
Initializing I2C bus in I2C_FAST I2C_7BIT I2C_MASTER_MODE...OK!
Initializing GCONFIG...Read EEPROM data...
EEPROM DATA: 21 bc 03 80 30 00 0e 00 00 21 23 00 f2 05 10 e0
1d 19 87 00 ff ff ff ff 10 03 00 a8 c0 00 ff ff
ff ff
Initializing software timer module...OK!
Module ID is 0x3
VB_FPGAConfigure...OK!
Initializing high speed UART...OK!
Initializing file system...OK!
Initializing ethernet and TCP/UDP command server...OK!
MAC Address = 0-23-21-0-0-e
IP Address = 192.168.0.151
Initializing RS-232 command server...OK!
RS-232 COM port is working in Normal mode at 57600bps
Initializing RS-485 command server...OK!

3. Press **Enter** to login to the ASCII Z command interface. When the HyperTerminal's command prompt "**>**" symbol appears, you can start entering ASCII Z commands.



4. To logout of the ASCII Z command interface, type **`exit`** and press **Enter**.



3.4 ASCII Z Command Format

The ASCII Z command is comprised of the following parts:

Header	Group/Module/Window Assignment	Parameter 1	Parameter 2	. . .

The following is a list the rules to follow when entering the ASCII Z command:

- It is acceptable to enter commands in small or capital letters, and the five columns are separated by a space.
- **Header** = **z** + command character
- **Group/Module/Window Assignment** (**GGMMPP**) = is comprised of six Arabic numerals. This is used in designating the device's Group/Module/Window assignment.

  Group = is comprised of the first two numbers (**01** ~ **99**), **00** is used to pertain to all groups.

  Module = is comprised of the middle two numbers (**01** ~ **15**), **00** is used to pertain to all modules.

  Window Assignment = is comprised of the last two numbers (**01** ~ **04**), **00** is used to pertain to all window assignments.
- **Parameter 1** of color assignment (**RRRGGGBBB**) = is comprised of nine Arabic numerals, this is used in designating the color.
- **Parameter 2** of on/off switch = "**1**" signifies ON while "**0**" signifies OFF.

The following is a list of available ASCII Z commands for the MCC-8004 series:

ZA

Format: **ZA GGMMPP** [NByN(**2**,**3**,……)] [Nth(**1**,**2**,……)]

Function: to set the automatic arrangement of windows.

Examples: **ZA 010900 2 1**
Set group 1 module 9 to a 2×2 map position 1,2,3,4 (quad).
ZA 010000 2 1
Set group 1's all modules to quad.
ZA 010202 3 2
Place window 010202 to a 3×3 map position 2.
ZA 010200 6 13
Place group 1 module 2 to a 6×6 map position 13,14,15,16.
ZA 000000
Automatically arrange all groups' windows to the optimum size and position.

ZB

Format: **ZB GGMMPP B**[order]/**L**[abel] **1** (on) / **0** (off)

Function: to turn on/off blinking of border or label.

Examples: **ZB GGMMPP L 0**
GGMMPP turn blinking label off.
ZB GGMMPP B 1
GGMMPP turn blinking border on.

ZC

Format: **ZC GGMMPP B**[order]/**L**[abel] **RRRGGGBBB** (red ratio **000** ~ **255**, green ratio **000** ~ **255**, blue ratio **000** ~ **255**) (**N**o**D**im**C**olor)

Function: to set the border of the window (with/without 3D effect) and the label's background color.

Description: **B**[order] to signify the border of the window.
L[abel] to signify the label's background color.
[**N**o**D**im**C**olor] to signify the border's 3D effect. You can add [**N**o**D**im**C**olor] to remove the border's 3D effect. Just enter **NDC** to signify **N**o**D**im**C**olor.

Examples: **ZC 010101 B 000255000**
sets the border color of group 1 module 1 window 1 as green with 3D effect.
ZC 020202 B 255000000 ndc
sets the border color of group 2 module 2 window 2 as red but without 3D effect.
ZC 030303 L 000000255
sets the border color of group 3 module 3 window 3 as blue with 3D effect.

ZE

Format: **ZE GGMM 1** (on) / **0** (off)

Function: to turn on/off echo, command response time would be much faster when echo is turned off.

Examples: **ZE GGMM 0**
Turn echo off for module GGMM RS-232.

ZF

Format: **ZF GGMMPP 1** (on) / **0** (off)

Function: to turn on/off the video window's full screen mode.

Examples: **ZF 010104 1**
sets group 1 module 1 window 4 to full screen mode display.
ZF 010104 0
disables full screen mode for group 1 module 1 window 4 and reverts it back to its former display size.

ZI

Format: **ZI GGMMPP** (if **PP** is **99** = clock) channel

Function: to set the input channel.

Description: For video window the channel values are **1** ~ **4**.
For clock the channel values are **1** = internal, **2** = DVI, **3** = VITC-NTSC, **4** = LTC, **5** = VITC-PAL, **6** = NTP (Network Time Protocol).

Examples: **ZI GGMM00 1**
sets GGMM to have all window source from internal channel 1.
ZI GGMM99 2
sets GGMM clock to synchronize with DVI.

To allow the clock input source to trigger NTP in order to synchronize the time instantly:
ZI GGMM99 1/2/.....
sets GGMM clock to sync to any other source except NTP.
ZI GGMM99 6
sets GGMM clock to sync to NTP.

ZK

Format: **ZK GGMM P**[reset] **S**[et]/**L**[oad]/**1** ~ **5**[ID of analog clock] Preset ID (**1** ~ **8**) **HH MM SS**

Function: to set the time and method of counting / NTP calibration time.

Examples: **ZK GGMM P S 1 11 22 33**
sets GGMM's preset time ID1 = 11:22:33.
ZK GGMM P L 1
sets GGMM's time to be the same as preset time of ID1.
ZK GGMM P 2
use analog clock shape #2.

Format for NTP calibration time: **ZK GGMM C**[alibrate] **HH MM**
ZK GGMM C 2 30
execute NTP calibration every 2.5 hours.
This setting will trigger NTP calibration instantly.

Format for control: **ZK GGMM** [**HH MM SS**] **0** (count down) / **1** (count up) / **2** (pause) / **3** (do not pause) / **4** (invert pause status) [counting method]
ZK GGMM 11 22 33
sets GGMM time to 11:22:33.
ZK GGMM 11 22 33 0
sets GGMM time to 11:22:33 and counting down.
ZK GGMM 1
sets GGMM clock to start counting upwards.

ZL

Format: **ZL GGMMPP** (clock) **00** ~ **255** (transparency) **000000000** (RRRGGGBBB set text color) **000000000** (RRRGGGBBB set label color) "**TEXT**" (label text string 50 ASCII characters maximum)

Function: to set the label's transparency, text, and text color.

Examples: **ZL GGMMPP 0 255000000 000000255 " CNN News Station "**
sets GGMMPP to no transparency, text color red, label color blue, with text " CNN News Station ".

> **NOTE:** All windows will share the same label transparency setting. That is, upon changing one window's label transparency, all other window's label transparency will also be changed simultaneously.

ZM

Format: **ZM GGMMPP ##** (resolution number) [**N**o **A**utomatic arrangement]

Function: to change the output resolution, the resolution number refers to the list of resolutions the MCC-8004 series supports.

Description:

Resolution	Vertical Frequency	
	50 Hz	60 Hz
800 × 600	42	1
1024 × 768	31	2
1280 × 720	30	15
1280 × 768	32	22
1280 × 1024	29	9
1280 × 768 SONY LMD230	N/A	23
1280 × 768 SONY LMD172	N/A	43
1280 × 768 SONY LMD322	N/A	44
1360 × 768	38	20
1400 × 1050	34	35
1400 × 1050 JVC	33	27
1440 × 900	46	45
1600 × 1200	39	10
1680 × 1050	41	40
1920 × 1080 (1080p)	28	26
1920 × 1200	37	36
1280 × 800 Apple monitor	N/A	56

252: VESA timing
253: color graphic card timing
254: frame lock timing
255: normal timing

Examples: **ZM 010000 10**
sets all the modules in group 1 to display at 1600×1200 resolution at 60 Hz vertical frequency and automatically arrange all windows to the optimum size and position.
ZM 000000 9 NA
sets all the modules in all the groups to have a 1280×1024 resolution at 60 Hz vertical frequency with no automatic arrangement.

ZN

Format: For turning on/off various options: **ZN GGMMPP** option (**A**[larm]/**B**[order]/**C**[lock control]/**D**[isplay closed caption]/**E**[xtend label background]/**F**[PGA selection] **0** (digital clock) / **1** (analog clock) /**L**[abel]/**M**[eter]/**N**[eedle of clock]/**R**[atio aspect]/**S**[afe area]/**V**[ideo format display]/**W**[indow]) **1** (on) / **0** (off).

Function: to turn on/off various options.

Examples: **ZN GGMM99 W 0**
turns GGMM clock off.
ZN GGMMPP B 1
turns GGMMPP border on.
ZN GGMMPP B 1
turns GGMMPP border on.
ZN GGMMPP F 0
selects mainboard FPGA 0.

ZO

Format: For initializing the audio source: **ZO GGMMPP I**[nitialize] **1** ~ **4** (Lgroup) **AES** (Rgroup) **60** (frequency is 60 Hz or else it is 59.94 Hz) **1** (PPM) / **2** (VU ballistics).
For setting the audio output: **ZO GGMMPP 1** (on) / **0** (off) [channel] **1** (stereo) / **2** (mono left) / **3** (mono right sound).

Function: to initialize the audio source as well as set the audio output.

Examples: **ZO GGMMPP I 1 AES 60 1**
sets GGMMPP Lgroup = 1 Rgroup = AES 60 Hz PPM.
ZO 000000 0
turns the audio off.
ZO 020100 1
turns group 2 module 1 audio on.
ZO 000203 1 4
turns the audio on for all groups in module 2 window 3 to channel 4.
ZO 020201 1 2 3
sets group 2 module 2 window 1 channel 2 to output audio on mono right.

ZP

Format: **ZP GGMMPP L**[oad] / **S**[ave] filename**.GP#**

ZP GGMM (This command only works in HyperTerminal, ACP does not support this format)

Function: load a previously saved preset or save current layout to a preset.

Description: If the filename includes space(s), use double quotation marks to signify the complete filename.
If the filename is not specified when saving the file, system will backup the file into flash memory.

Examples: **ZP 000000 L "stage1"**
sets all the modules in all the groups to load the previously saved "stage1" preset file
ZP 020000 S "file2.GP2"
saves the current layout of all modules in group 2 to a preset file "file2.GP2"
ZP 000000 S
saves the file of all modules in all the groups into flash memory.
ZP 000000 L Latest
load the latest saved file from flash memory.
ZP 0000
list master presets (ACP does not support this command).
ZP 0203
list Group 2 third module's presets (ACP does not support this command).

ZR

Format: **ZR GGMMPP SD** (width rate) **SD** (height rate) **HD** (width ratio) **HD** (height ratio)

Function: to lock and adjust the video ratio.

Examples: **ZR GGMM01 4 3 16 9**
sets GGMM01 SD video ratio as 4:3, HD video as 16:9.
ZR 000000 16 9 4 3
sets all windows' SD video ratio as 16:9, HD video as 4:3.
ZR GGMMPP 7 12 7 12
sets GGMMPP's SD and HD video ratio as 7:12.
ZR GGMMPP 0 0 0 0
disables the function by setting the width rate or height rate = 0.

ZT

Format: **ZT GGMMPP 1** [Tally 1] / **2** [Tally 2] **1** (on) / **0** (off) **#** (color index number)

Function: turn on or off the Tally for a window or all the windows in a group. The color index number is a list of colors that the Tally can be.

Description: Designate the action of the Tally. The following table shows the color index.

Index	Color
1	Null
2	Red
3	Green
4	Yellow
5	Blue
6	Pink
7	Light Blue
8	White

Examples: **ZT 000000 2 1 6**
activate Tally 2 for all the window(s) in all the module(s) for all the group(s) with pink color.
ZT 010203 1 0
close Tally 1 for group 1 module 2 window 3.

NOTE: Upon changing a Tally color, the same color is applied to the other Tally of the same module.

ZV

Format: **ZV GGMMPP** volume (default = **32**, range **0** ~ **127**)

Function: to set the analog audio's volume level.

Examples: **ZV GGMM01 0**
turns GGMM's window 1 analog audio to mute.

ZW

Format: **ZW GGMMPP X** position **Y** position **W**(idth) **H**(eight)

Function: to set the window's position and size, or appear as the topmost window of a module.

Examples: **ZW GGMM01**
sets GGMM's window 1 as the top window.
ZW GGMMPP 100 200 300 400
sets GGMMPP at (100,200) (400,600).

ZX

Format: **ZX GGMMPP "**label text**"** (include the quotation marks) **#** (font size (where **0** is the current font size, **1** ~ **4** are the available font size) + background extend (**0** is do not extend, **64** is extend) + outside video (**0** is inside video, **128** is outside video)

Function: to change the label text and font size as well as specify the inner/ outer video.

Examples: **ZX 000000 "Input 1"**
Input 1 will appear as the label for all the window(s) in all the module(s) of all the group(s).
ZX 000000 3
sets all window's label font size to 3.
ZX 000000 " Outside video " 128
Set all windows' label as " Outside video " with outside video.

4 Firmware Upgrade

This chapter familiarizes you with updating the firmware of your Avitech MCC-8004 series as well as resetting it to the factory-default value.

4.1 Updating the Firmware

The firmware for MCC-8004 series is divided into:

- DS80C400 (C2.1) firmware
- FPGA MB digital clock firmware
- FPGA MB analog clock firmware
- FPGA UB firmware
- OSD firmware

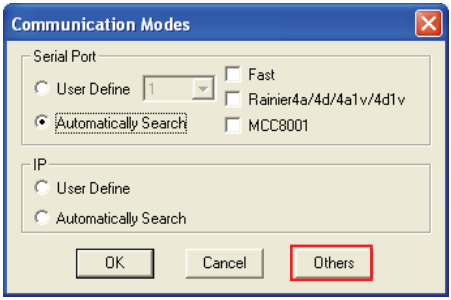
IMPORTANT: Disconnect all cascaded modules; connect only one module at a time.

DS80C400 (C2.1) Firmware

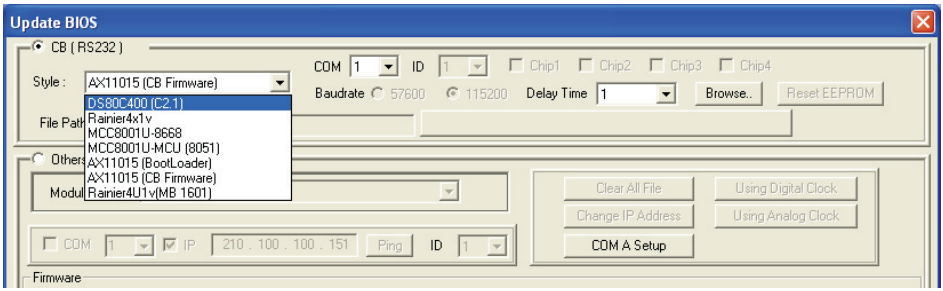
To update the DS80C400 (C2.1) firmware, perform the following steps:

1. Connect the power cable to the **100-250V AC** power jack on the rear panel of the MCC-8004 series and the other end to an electrical outlet.
2. Use a serial (RS-232) cable and connect one end to the MCC-8004 series rear panel's **RS-232** port and the other end to the computer's serial port side.

3. Run the Galaxy program by double-clicking the **`Galaxy-V311.exe`** file. Click **Others** when the following screen appears.



4. When the following screen appears, click to select the radio button for **CB (RS232)** and on the **Style** drop-down menu select **DS80C400 (C2.1)**.



5. Select the COM port number you are using to connect the MCC-8004 series to the PC from the **COM** drop-down menu.

6. Select the **Delay Time** (**1**, **5**, **10**, **15**, **20**, **25**, **30**, **35**, **40**) from the drop-down menu.

7. Click the **Browse** button to specify the location of the firmware file and select **`mcc-8004d.hex`** (for MCC-8004d) / **`mcc-8004u.hex`** (for MCC-8004Q/P/U) / **`mcc-8004a.hex`** (for MCC-8004a) / **`mcc-8004aa.hex`** (for MCC-8004aA).

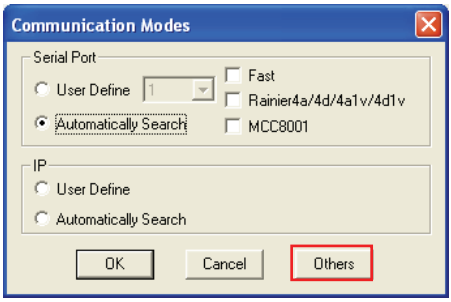
8. Push the number **1** dip switch located on the MCC-8004 series rear panel downward to the **ON** position.

9. Click the **Update** button located on the left lower portion of the screen.
10. Push back the number **1** dip switch upward to the default position.
11. When the next screen appears, pull off the power cord from the power jack to shutdown the MCC-8004 series, then re-attach the power cord to restart the MCC-8004 series.

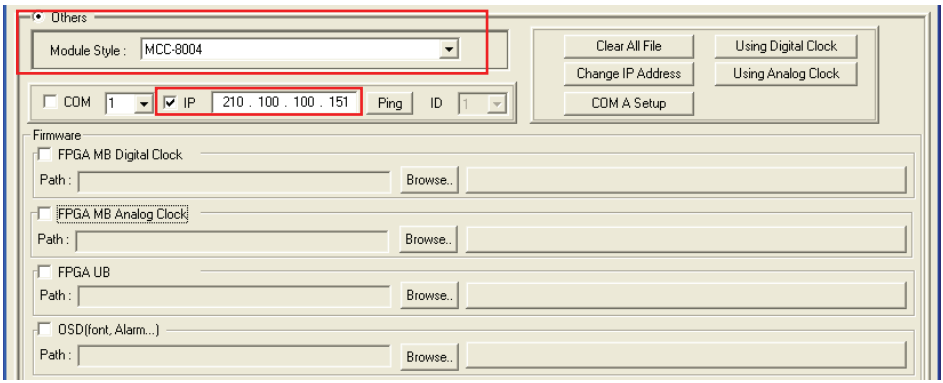
FPGA MB Digital Clock Firmware

To update the FPGA MB digital clock firmware, perform the following steps:

1. Run the Galaxy program by double-clicking the **`Galaxy-V311.exe`** file. Click **Others** when the following screen appears.

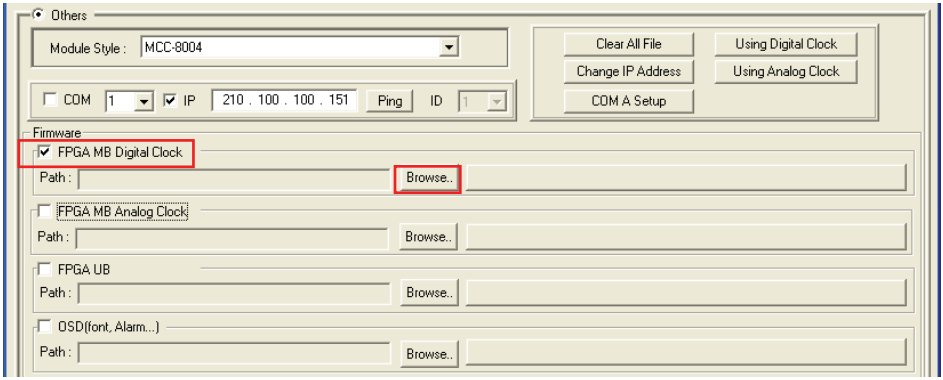


2. When the following screen appears, select **Others** and on the **Module Style** drop-down menu select **MCC-8004**.



3. Click to select the **IP** checkbox with the factory default **210.100.100.151** value. In case you have changed the IP address of your MCC-8004 series then make sure to enter the correct IP address.

4. Click to select the **FPGA MB Digital Clock** item, then click the **Browse** button to specify the location of the firmware file and select **`AT-MCC-8004MB-D 080123.rbf`** (for MCC-8004d/Q) **`AT-MCC-8004MB-D0123-08.rbf`** (for MCC-8004a/aA/P/U).



5. Click the **Update** button located on the left lower portion of the screen.

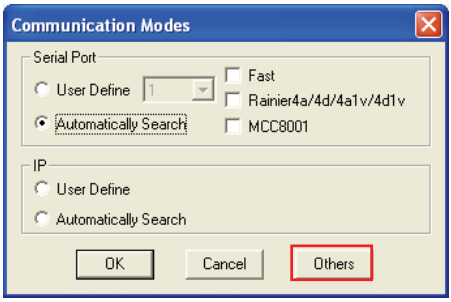
6. Reboot (unplug and re-plug the power cord) the MCC-8004 series when FPGA MB Digital Clock firmware update is successful.

> **NOTE:** Shutdown and startup of MCC-8004 series needs to be done to completely update the FPGA MB Digital Clock firmware.

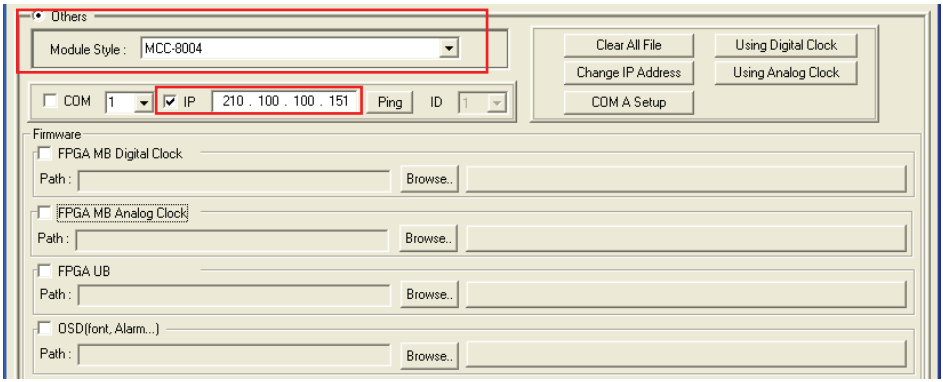
FPGA MB Analog Clock Firmware

To update the FPGA MB analog clock firmware, perform the following steps:

1. Run the Galaxy program by double-clicking the **`Galaxy-V311.exe`** file. Click **Others** when the following screen appears.

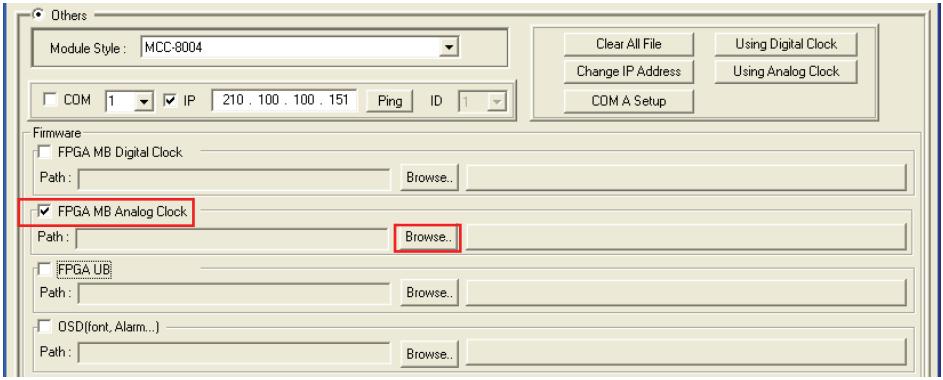


2. When the following screen appears, select **Others** and on the **Module Style** drop-down menu select **MCC-8004**.



3. Click to select the **IP** checkbox with the factory default **210.100.100.151** value. In case you have changed the IP address of your MCC-8004 series then make sure to enter the correct IP address.

4. Click to select the **FPGA MB Analog Clock** item, then click the **Browse** button to specify the location of the firmware file and select **`AT-MCC-8004MB-A 080121.rbf`** (for MCC-8004d/Q) **`AT-MCC-8004MB-A0121-08.rbf`** (for MCC-8004a/aA/P/U).



5. Click the **Update** button located on the left lower portion of the screen.

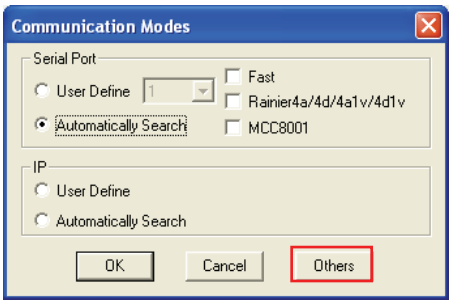
6. Reboot (unplug and re-plug the power cord) the MCC-8004 series when FPGA MB Analog Clock firmware update is successful.

> **NOTE:** Shutdown and startup of MCC-8004 series needs to be done to completely update the FPGA MB Analog Clock firmware.

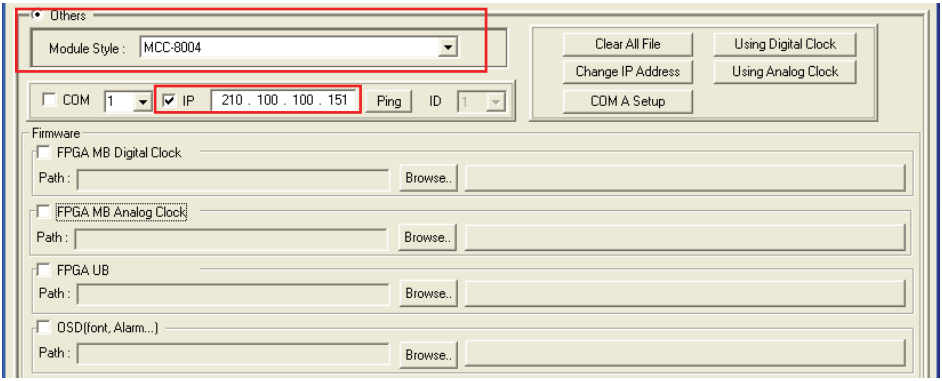
FPGA UB Firmware

To update the FPGA UB firmware, perform the following steps:

1. Run the Galaxy program by double-clicking the **`Galaxy-V311.exe`** file. Click **Others** when the following screen appears.

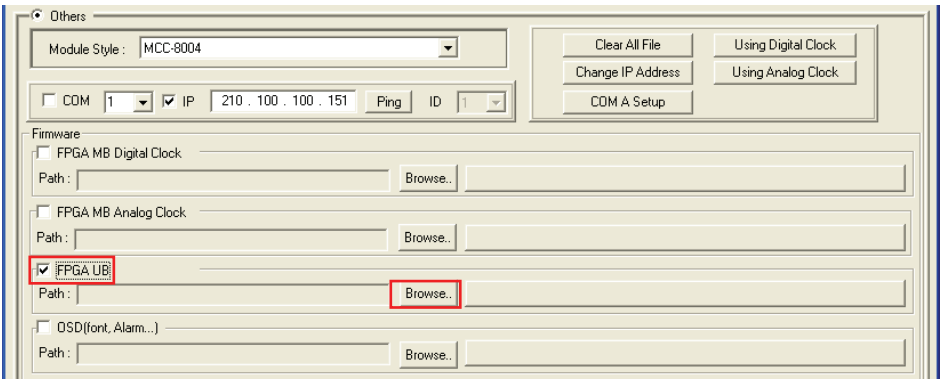


2. When the following screen appears, select **Others** and on the **Module Style** drop-down menu select **MCC-8004**.



3. Click to select the **IP** checkbox with the factory default **210.100.100.151** value. In case you have changed the IP address of your MCC-8004 series then make sure to enter the correct IP address.

4. Click to select the **FPGA UB** checkbox, then click the **Browse** button to specify the location of the firmware file and select
   `AT-MCC-8004UB-DAll 080123.rbf` (for MCC-8004d/Q)
   `AT-MCC-8004UB-AA0126.rbf` (for MCC-8004aA)
   `AT-MCC-8004UB-PALL0129-08.rbf` (for MCC-8004P)
   `AT-MCC-8004UB-UALL0213-08.rbf` (for MCC-8004U).



5. Click the **Update** button located on the left lower portion of the screen.

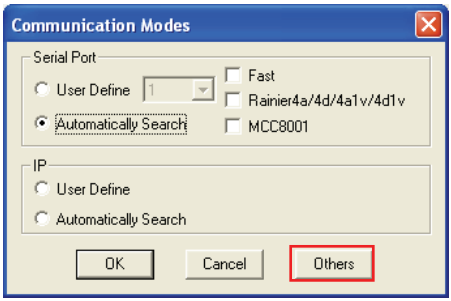
6. Reboot (unplug and re-plug the power cord) the MCC-8004 series when FPGA UB firmware update is successful.

> **NOTE:** Shutdown and startup of MCC-8004 series needs to be done to completely update the FPGA UB firmware.

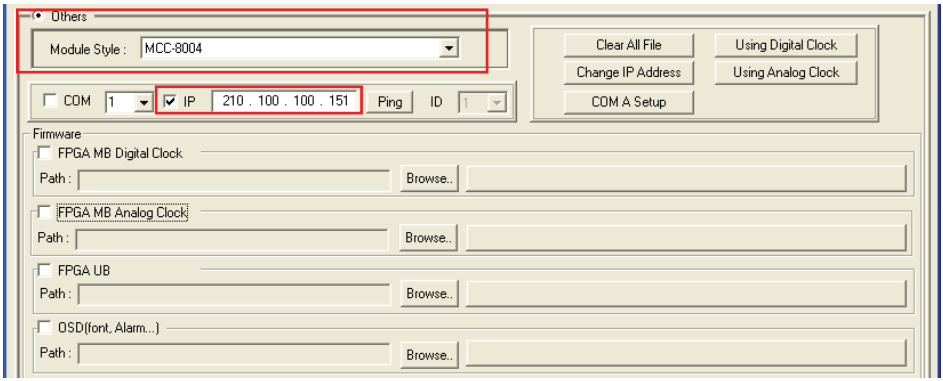
OSD Firmware

To update the OSD firmware, perform the following steps:

1. Run the Galaxy program by double-clicking the **`Galaxy-V311.exe`** file. Click **Others** when the following screen appears.

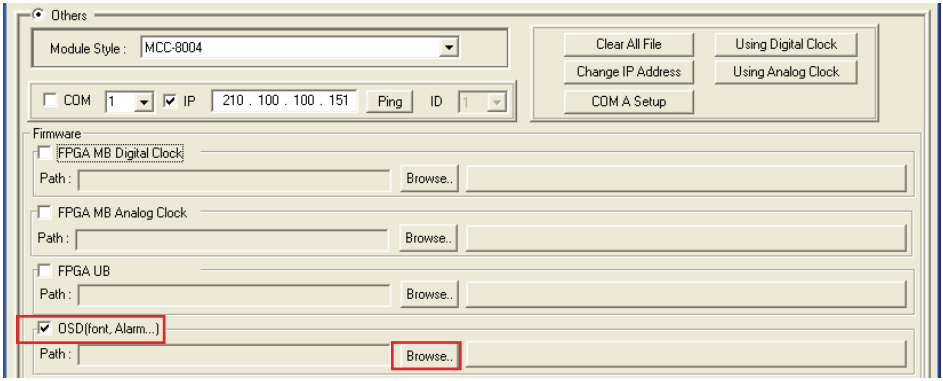


2. Select **Others** and on the **Module Style** drop-down menu select **MCC-8004**.



3. Click to select the **IP** checkbox with the factory default **210.100.100.151** value. In case you have changed the IP address of your MCC-8004 series then make sure to enter the correct IP address.

4. Click to select the **OSD** checkbox, and then click the **Browse** button to specify the location of the firmware file and select **AT-MCC8000-DATA-V104.OSD** (for MCC-8004d/Q/a/aA/P/U).



5. Click the **Update** button located on the left lower portion of the screen.

6. Reboot (unplug and re-plug the power cord) the MCC-8004 series when OSD firmware update is successful.

> **NOTE:** Shutdown and startup of MCC-8004 series needs to be done to completely update the OSD firmware.

4.2 Resetting to the Factory-default State

To reset your MCC-8004 series to the factory-default state, perform the following steps:

1. Power-off the MCC-8004 series by unplugging the power cord.

2. Push the number **2** dip switch located on the MCC-8004 series rear panel downward to the **ON** position.

3. Power-on the MCC-8004 series by plugging in the power cord (make sure that power is available).

4. Push back the number **2** dip switch upward to the default position.

A Glossary

DDC (Display Data Channel) VESA standard for communication between a monitor display and a video adapter. Using DDC, a monitor display can inform a computer's video card about its properties, such as maximum resolution and color depth, to ensure that the user is presented with valid options for configuring the display.

Group (screen) A collective number of video or image windows showing on a monitor display. Basically the Group defined here is the display device that is connected to the last module's **DVI-I Out** port.

Latest File Contains the layout that gets loaded every time the module is powered on.

Master Module Connects to the PC via RS-232 cable or IP to function as the controlling module when cascading more than one module.

Module File the module's **`*.sys`** file contains the module ID / model name / IP address / Tally configuration data.

Preset File the preset's **`*.gpx`** file contains the layout/label/border configuration data.

Rotary ID Selector Switch

A circular dip switch used to set a unique ID to each MCC-8004 module. The rotary ID selector switch's range spans from **0** ~ **9** and then from **A** ~ **F**. For the Galaxy program to recognize specific modules in a group, each module in a group setting HAS to have a unique ID number. When ran, the program will detect a module's specific ID and add unity to it. Therefore, if a module has an ID of **1**, the program will detect it as **ID2** while an ID of **2** will be detected as **ID3**, and so forth.

Slave Module Module that is cascaded with / and controlled by the master module.

System File the system **`*.agi`** file contains the group number and group cascading module's configuration data.